ONKYO® SERVICE MANUAL

COMPACT DISC RECEIVER
MODEL CR-185

Black and Silver models

UP	230V AC, 50Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

ONKYO
AUDIO COMPONENTS

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SPECIFICATIONS

AMP SECTION

Power Output:	2 x 20 Watts at 4 ohms 1 kHz DIN
	2 x 17 Watts at 6 ohms 1 kHz DIN
	2 x 15 Watts at 8 ohms 1 kHz DIN
	2 x 15 Watts min RMS at 8 ohms 1 kHz no more than 0.2 % THD
Dynamic Power:	2 x 24 Watts at 4 ohms
	2 x 18 Watts at 8 ohms
Total Harmonic Distortion:	0.2 % at Rated Power
IM Distortion:	0.2 % at Rated Power
Damping Factor:	40 at 8 ohms
Sensitivity and Impedance:	TAPE / MD PLAY : 150 mV, 50 kohms
Frequency Response:	10 to 50,000 Hz : +0 / –3dB
Tone Control:	Super BASS : + 13 dB at 55 Hz
	BASS : ± 10 dB at 100 Hz
	TREBLE : ± 10 dB at 10,000 Hz
Single to Noise Ratio:	TAPE : 100 dB (IHF A)
Muting	–∞ dB

General

Power supply:	AC 230 volts, 50 Hz
Dimensions:	185 W x 131 H x 329 D mm (7-5/16" x 5-3/16" x 12-15/16")
Weight:	4.0 kg (8.8 lbs)

Specifications and features are subject to change without notice.

FM Tuner section

Tuning Range:	87.50 to 108,00 MHz (50 kHz steps)
Usable Sensitivity:	Mono 12.8 dBf, 1.2 µV (75 ohms IHF)
	1.0 µV (75 ohms DIN)
	Stereo 18.8 dBf, 2.2 µV (75 ohms IHF)
	25.0 µV (75 ohms DIN)
50 dB Quieting:	Mono 18.8 dBf, 2.4 µV (75 ohms)
Sensivity:	Stereo 38.8 dBf, 24.0 µV (75 ohms)
Capture Ratio:	2.0 dB
Image Rejection Ratio:	85 dB
IF Rejection Ratio:	90 dB
Signal – to – Noise:	Mono 73 dB, IHF
Ratio	Stereo 67 dB, IHF
Selectivity:	50 dB DIN (+ / – 300 kHz at 40 kHz Devi.)
Harmonic Distortion:	Mono 1.0 %
	Stereo 1.5 %
Frequency Response:	30 to 15,000 Hz (+ / – 1.5 dB)
Stereo Separation:	35 dB at 1.000 Hz
	25 dB at 100 to 10,000 Hz
Stereo Threshold:	17.2 dBf, 2.0 µV (75 ohms)

CD SECTION

Signal readout system:	Optical non–contact
Reading rotation:	About 500 – 200 r.p.m. (constant linear velocity)
Linear velocity:	1.2 – 1.4 m / s
Error correction system:	Cross Interleave Read Solomon code
D / A converter:	1 bit
Digital filter:	352.8 kHz 8 times over sampling
Number of channels:	2 (stereo)
Frequency response:	5 Hz – 20 kHz

CAUTION ON REPLACEMENT OF OPTICAL PICKUP

The laser diode in the optical pickup block is so sensitive to static electricity,surge current and etc, that the components are liable to be broken down or its reliability remarkably deteriorated.

During repair,carefulley take the following precautions. (The following precautions are included in the service parts.)

PRECAUTIONS

1.Ground for the work-desk.
Place a conductive sheet such as a sheet of copper (with inpedance lower than 10MΩ) on the work-desk and place the set on the conductive sheet so that the chassis.

2.Grounding for the test equipment and tools.
Test equipments and toolings should be grounded in order that their ground level is the same the ground of the power source.

3.Grounding for the human body.
Be sure to put on a wrist-strap for grounding whose other end is grounded.
Be particularly careful when the workers wear synthetic fiber clothes, or air is dry.

4.Select a soldering iron that permits no leakage and have the tip of the iron well-grounded.

5.Do not check the laser diode terminals with the probe of a circuit tester or oscilloscope.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMMISION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

Laser Diode Properties

- Material: GaAlAs
- Wavelength: 760～800 nm
- Emission Duration: continuous
- Laser output: max. 0.5mW*

*This output is the value measured at a distance about 1.8mm from the objective lens surface on the Optical Pick-up Block.

LASER WARNING LABELS

The label shown below are affixed.

1. Warning lable

This label is located on the chassis.

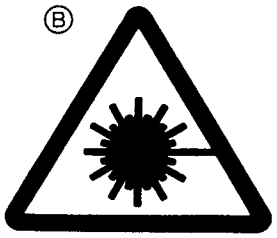
Ⓐ

DANGER —INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION —HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED.

ATTENTION —RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L ECLENCHEMENT DE SECURITE ANNULE.

Ⓑ



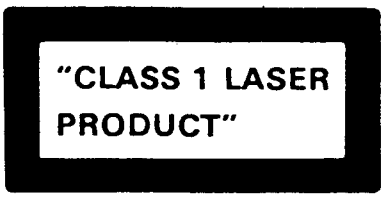
Ⓒ

VARNING
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.
VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDER ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
ADVARSEL
USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.

Ⓐ : Danger label
Ⓒ : Only 230V model

2. Class 1 label

This label is located on the left side of top cover.



LUOKAN 1
LASERLAITE

KLASS 1
LASER APPARAT

ADVARSEL

Denna maekning er anbragt på apparatets højre side og indikerer, at apparatet arbejder med laserstråler af klasse 1, hvilket betyder, at der anvendes laserstråler af svageste klasse, og at man ikke på apparatets yderside kan blive udsat for utilladelig kraftig stråling.

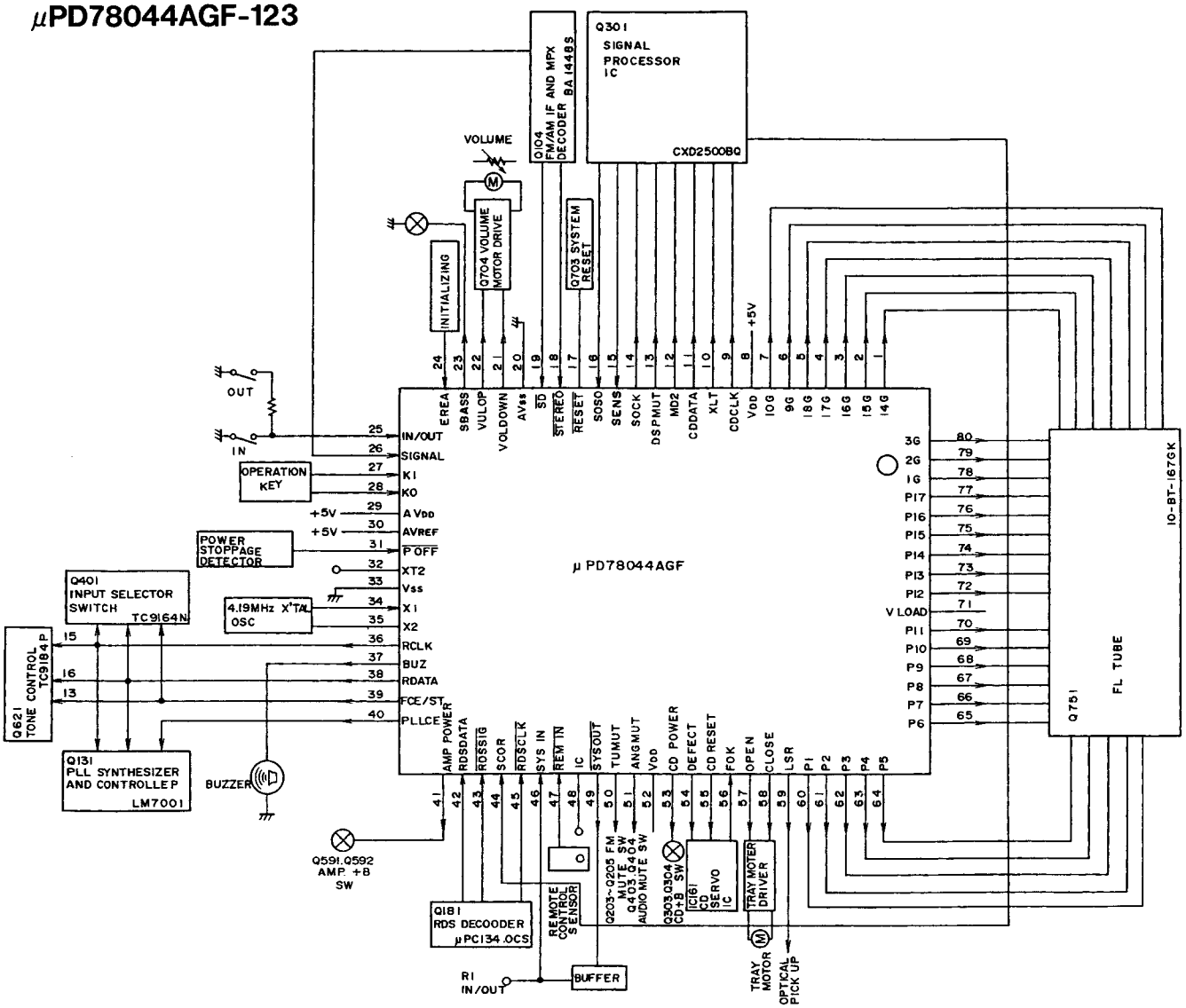
APPARATET BØ/R KUN ÅBNES AF FAGFOLK MED SÆRLIGT KENDSKAB TIL APPARATER MED LASERSTRÅLER!

Indvendigt i apparatet er anbragt den her gengivne advarselsmærkning, som advarer imod at foretage sådnne indgreb i apparatet, at man kan komme til at udsaette sig for laserstråling.

VAROITUS! LAITTEEN KAYTTÄMINEN MUULLA KUIN TÄSSA KAYTTOOHJEESSA MAINTULLA TAVALLA SAATTAA ALTISTAA KAYTTAJAN TURVALLISUUSLUOKAN 1 YLITTAVALLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

MICROPROCESSOR CONNECTION DIAGRAM

μPD78044AGF-123



Operation	VOLUP output	VOLDOWN output
Stop	H	H
VOL UP	H	L
VOL DOWN	L	H

Table 1

BAND1	BAND0	Region	Frequency range	Channel space
0	0	Japan	76~90MHz	100kHz
0	1	Europe	87.50~108MHz	50kHz
1	0	Worldwide	87.50~108MHz	50kHz
1	1	U.S.A	87.9~107.9MHz	200kHz

Table 2

AM10k	Region	Frequency range	Channel space
0	Japan	522~1629kHz	9kHz
0	Europe	522~1629kHz	9kHz
0	Worldwide	531~1602kHz	9kHz
1	U.S.A	530~1710kHz	10kHz

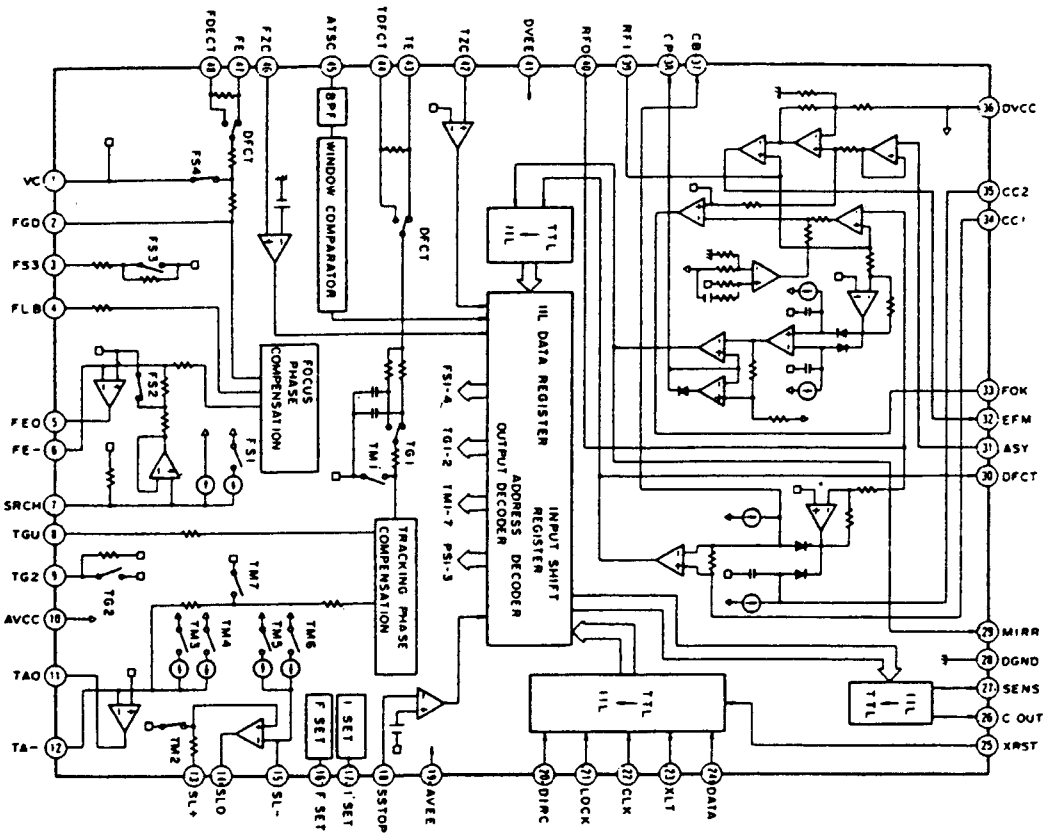
Table 3

TERMINAL DESCRIPTIONS

Pin No.	Function	Description
1~7	4G~10G	Grid output terminals.
8	VDD	Power supply terminal.
9	CDCLK	Clock output terminal. Connect the terminal CLOCK of signal processor IC.
10	XTL	Latch output terminal. Connect the terminal XLAT of signal processor IC.
11	CDDATA	Data output terminal. Connect the terminal DATA of signal processor IC.
12	MD2	Digital output control output terminal. Not used.
13	DSPMUT	Digital muting output terminal. Connect the terminal MUTE of signal processor IC.
14	SQCK	Clock output terminal for SQCK. Connect the terminal SQCK of signal processor IC.
15	SENS	Sense signal input terminal. Connect the terminal SENS of signal processor IC.
16	SQSO	Data input terminal from SQSO. Connect the terminal SQSO of signal processor IC.
17	$\overline{\text{RESET}}$	System reset input terminal.
18	$\overline{\text{STEREO}}$	Stereo broadcast detection input terminal. L when STEREO.
19	$\overline{\text{SD}}$	Broadcast detection input terminal. L when received the broadcast more than muting level.
20	AVSS	Ground terminal for D/A converter.
21	VOL DOWN	Volume control output terminals.
22	VOL UP	Refer the table 1.
23	SBASS	Super bass control output terminal.
24	AREA	Initializing setting terminal for the Frequency range.
25	IN/OUT	Input terminal for tray open/close detection switches.
26	SIGNAL	Signal level input terminal for automatic memory.
27	K1	Operation key connection terminals.
28	K0	
29	AVDD	Analog power supply for D/A converter.
30	AVREF	Reference power supply for D/A converter.
31	$\overline{\text{POFF}}$	Power stoppage detection terminal.
32	XT	Crystal resonator connection terminal for sub system.
33	VSS	Ground terminal.
34	X1	Ceramic resonator connection terminal for main system.
35	X2	Connect the 4.19MHz ceramic resonator.
36	RCLK	Clock output terminal for PLL IC and the source selector IC.
37	BUZ	Buzzer control output terminal.
38	RDATA	Data output terminal for PLL IC and the source selector IC.
39	FCE/ST	Strobe output terminal for the source selector IC and electric volume.
40	PLLCE	Chip enable terminal for PLL IC.
41	AMP POWER	Power supply terminal.
42	RDSDATA	Data input terminal from RDS decoder.
43	$\overline{\text{RDSSIG}}$	RDS broadcast detection terminal.
44	SCOR	Sub code detection terminal. Connect the terminal SCOR of signal processor IC.
45	$\overline{\text{RDSSCK}}$	Clock input terminal from RDS decoder.
46	SYSIN	System code input terminal.
47	$\overline{\text{REMIN}}$	Remote control signal input terminal.
48	IC	Connect the ground terminal.
49	$\overline{\text{SYSOUT}}$	System code output terminal.
50	TU MUTE	Muting output terminal for tuner section.
51	ANGMUT	Analog muting output terminal.
52	VDD	Positive power supply terminal.
53	CD POWER	Power supply terminal for CD mechanism.
54	DEFECT	Defect output pin for CD mechanism.
55	CD RESET	Reset output terminal for CD mechanism.
56	FOK	FOK input terminal from CD mechanism.
57	OPEN	CD tray open control output terminal.
58	CLOSE	CD tray close control output terminal.
59	LSR	Optical pickup control output terminal.
60~70	P1~P11	Segment output terminals.
71	VLOAD	Pull-down resistor connection terminal for FL tube controller.
72~77	P12~P17	Segment output terminals.
78~80	1G~3G	Grid output terminals.

IC BLOCK DIAGRAM AND DESCRIPTIONS

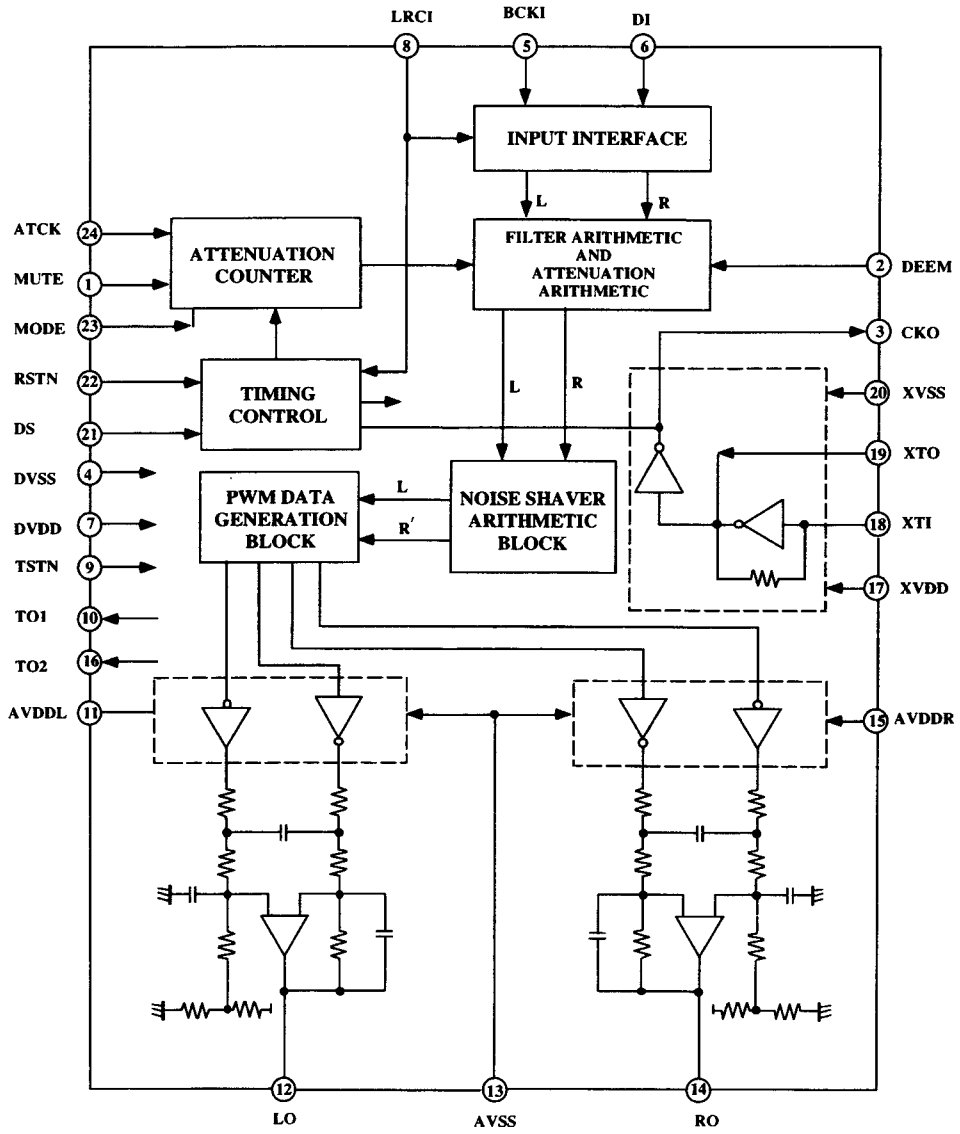
CXA1372Q (Servo Signal Processor)



PIN NO.	SYMBOL	I/O	DESCIRPION
1	VC	I	Mid-point voltage input terminal.
2	FGD	I	Connect the capacitor between FS3 and this pin when the high frequency gain focus servo is dropped.
3	FS3	I	Focus servo high frequency gain changeover input terminal.
4	FLB	I	Input terminal for the low frequency boost of focus servo.
5	FEO	O	Focus drive output terminal.
6	FE-	I	Inversion input terminal of focus amplifier.
7	SRCH	I	Time constant terminal to make the focus search waveform.
8	TGU	I	Tracking high frequency changeover input terminal.
11	TAO	O	Tracking drive output terminal.
12	TA-	I	Inversion input terminal of tracking amplifier.
13	SL+	I	No-inversion input terminal of sled amplifier.
14	SLO	O	Sled drive output terminal.
15	SL-	I	Inversion input terminal of sled amplifier.
16	FSET	I	Peak setting input of phase correction of focus tracking.
17	ISET	I	This terminal is flowed the current so that the focus search,tarcking jump,and sled kick height is decided.
18	SSTOP	I	Inner switch selection input terminal.
20	DIRC	I	This terminal is used when track jump.
21	LOCK	I	The sled runaway prevention circuit operates at the low level.
22	CLK	I	Serial data transfer clock input from microprocessor.

PIN NO.	SYMBOL	I/O	DESCIRPION
23	XLT	I	Latch input terminal for microprocessor.
24	DATA	I	Serial data input terminal for microprocessor.
25	XRST	I	Reset input terminal.Active low.
26	C.OUT	O	Signal output to count the track numbers.
27	SENS	O	This terminal outputs FZC,and SSTOP to according command from the microprocessor.
29	MIRR	O	Mirror comparator output terminal.
30	DFCT	O	Defect comparator output terminal.
31	ASY	I	Auto asymmetry control input terminal.
32	EFM	O	EFM comparator output terminal.
33	FOK	O	Focus OK comparator output terminal.
34	CC1	O	Defect bottom hold output terminal.
35	CC2	I	Defect bottom hold input terminal from CC1.
37	CB	I	Defect bottom hold capacitor connection termina.
38	CP	I	Mirror hold capacitor connection terminal.
39	RFI	I	RF summing amplifier input terminal.
40	RFO	O	RF summing amplifier output terminal.
42	TZC	I	Tracking zero-cross comparator input terminal.
43	TE	I	Tracking error input terminal.
44	TDFCT	I	Capacitor connection terminal for time constant when defect.
45	ATSC	I	Window comparator input terminal for ATSC detection.
46	FZC	I	Focos zero-cross comparator input terminal.
47	FE	I	Focus error input terminal.
48	FDFCT	I	Capacitor connection terminal for time constant when defect.

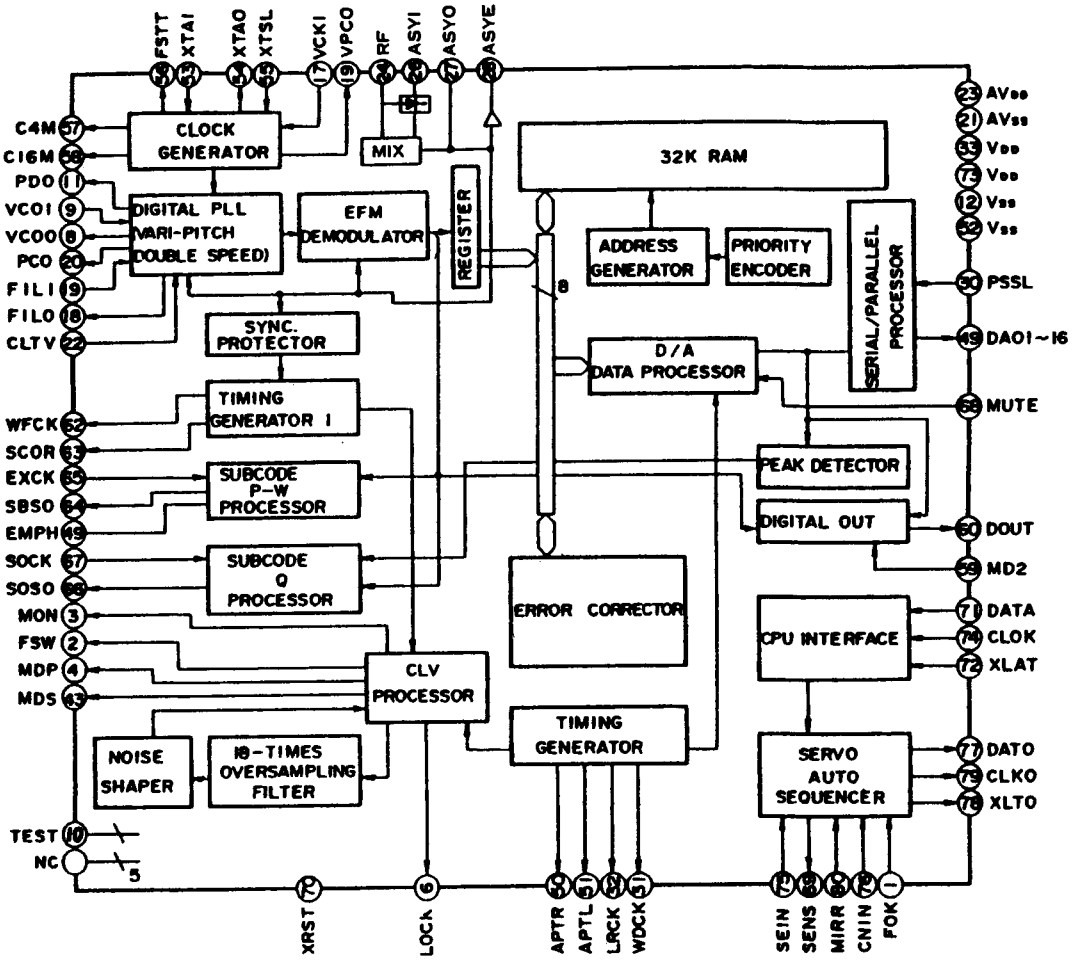
SM5875BM (DA CONVERTER)



Pin No.	Symbol	I/O	Description
1	MUTE	Ip	MODE=H:Muting control pin
			MODE=L:Attenuator level control pin
2	DEEM	Ip	De-emphasis control pin. On at high level.
3	CKO	O	Clock output pin: 16.9344MHz
4	DVSS	-	Digital supply pin
5	BCKI	Ip	Bit clock input pin
6	DI	Ip	Serial data input pin
7	DVDD	-	Digital supply pin
8	LRCI	Ip	Sampling rate clock input pin
9	TSTN	Ip	Test input pin
10	TO1	O	Test output pin
11	AVDDL	-	Analogue supply pin for left channel
12	LO	O	Analogue signal output pin for left channel

Pin No.	Symbol	I/O	Description
13	AVSS	-	Analogue supply pin
14	RO	O	Analogue signal output pin for right channel
15	AVDDR	-	Analogue supply pin for right channel
16	TO2	O	Test output terminal
17	XVDD	-	Supply pin for resonator system
18	XTI	I	Crystal connection or external clock input pin
19	XTO	O	Crystal connection pin
20	XVSS	-	Supply pin for resonator system
21	DS	Ip	Playback speed select pin. Double speed at H
22	RSTN	Ip	Reset pin
23	MODE	Ip	Muting/Attenuator mode select pin
24	ATCK	Ip	Attenuator level setting clock

CXD2500A/BQ (Digital Signal Processor)

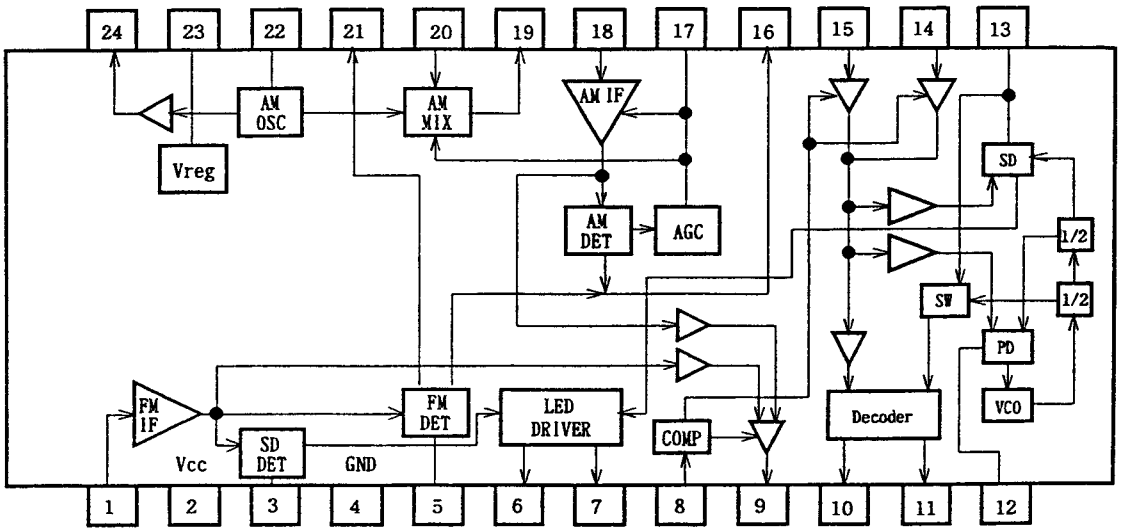


NO.	SYMBOL	I/O	DESCRIPTION	
1	FOK	I	Foucs Ok input	
2	FSW	O	Output filter changeover output for spindle motor	
3	MON	O	Spindle motor control output	
4	MDP	O	Spindle motor servo control	
5	MDS	O	Spindle motor servo control	
6	LOCK	O	H when GFS is the high level	
7	NC			
8	VCOO	O	Oscillation circuit output for analog EFM PLL.	
9	VCOI	I	Oscillation circuit input for analog EFM PLL. (8.6436MHz)	
10	TEST	I	Test terminal	
11	PDO	O	Charge pump output analog EFM PLL	
12	Vss		Ground terminal	
13-15	NC			
16	VPCO	O	PLL charge pump output for variable pitch	
17	VCKI	I	Clock input for variable pitch from VCO (16.934MHz)	
18	FILO	O	Filter output for master PLL.	
19	FILI	I	Filter input for master PLL.	
20	PCO	O	Charge pump output of master PLL	
21	AVss		Analog ground	
22	CLTV	I	VCO control voltage input for master	
23	AVDD		Analog section power supply (+5V)	
24	RF	I	EFM signal input	
25	BIAS	I	Asymmetry circuit constant current input	
26	ASYI	I	Asymmetry comparator voltage input	
27	ASYO	O	EFM full swing output	
28	ASYE	I	Asymmetry control circuit	
29	NC			
30	PSSL	O	Audio data output mode changeover input Serial data at L and paraller data at H.	
31	WDCK	I	D/A interface for 48 bits slot. Word clock f=2Fs.	
32	LRCK	I	D/A interface for 48 bits slot. LR clock f=Fs.	
33	VDD		Power supply terminal (+5V)	
34-49			Data output terminals	
			PSSL=1	PSSL=0
34	DA16	O	DA16	Serial data of 48 bits slot
35	DA15	O	DA15	Bit clock of 48 bits slot
36	DA14	O	DA14	Serial data of 64 bits slot
37	DA13	O	DA13	Bit clock of 68 bits slot
38	DA12	O	DA12	LR clock of 68 bits slot
39	DA11	O	DA11	GTOP output
40	DA10	O	DA10	XUGF output
41	DA09	O	DA09	XPLCK output

NO.	SYMBOL	I/O	DESCRIPTION	
42	DA08	O	DA08	GFS output
43	DA07	O	DA07	RFCK output
44	DA06	O	DA06	C2P0 output
45	DA05	O	DA05	XRAOF output
46	DA04	O	DA04	MNT 3 output
47	DA03	O	DA03	MNT 2 output
48	DA02	O	DA02	MNT 1 output
49	DA01	O	DA01	MNT 0 output
50	APTR	O	Control output for aperture correction. H when R ch.	
51	APTL	O	Control output for aperture correction. H when L ch.	
52	Vss		Ground terminal	
53	XTAI	I	Crystal oscillation circuit input of 16.9344MHz or 33.8688MHz input.	
54	XTAO	O	Crystal oscillation circuit output of 16.9344MHz.	
55	XTSL	I	Crystal selection input terminal. L when 16.9344MHz. H when 33.8688MHz.	
56	FSTT	O	2/3 divided output of pins 53 and 54.	
57	C4M	O	4.2336 MHz output	
58	C16M	O	16.9344 MHz output	
59	MD2	I	Digital output control input. On at high level.	
60	DOUT	O	Digital output	
61	EMPH	O	Emphasis control output. Active high.	
62	WFCK	O	Write frame clock output	
63	SCOR	O	Sub-code detection output. H when is detected SO or SI.	
64	SBSO	O	Serial output of sub-code (P~W)	
65	EXCK	I	Clock input for read out SQSO.	
66	SQSO	O	Sub Q 80 bits, PCM peak, and level data 16 bits output.	
67	SQCK	I	Clock input for read out SQSO	
68	MUTE	O	Muting control output. Active H.	
69	SENS		Sens output. Output to the microprocessor	
70	XRST	I	System reset. Reset at the low level.	
71	DATA	I	Serial data input from the microprocessor.	
72	XLTA	I	Latch input from the microprocessor. Latch the serial data at the trailing.	
73	VDD		Power supply treminal	
74	CLOK	I	Serial data transfer clock input from microprocessor	
75	SEIN	I	Sens input from SSP	
76	CNCI	I	Track jump numbers count signal input	
77	DATO	O	Serial data output to SSP	
78	XLTO	O	Serial data latch output to SSP. Latch at trailing.	
79	CLKO	O	Serial data transfer clock output to SSP.	
80	MIRR	I	Mirror signal input	

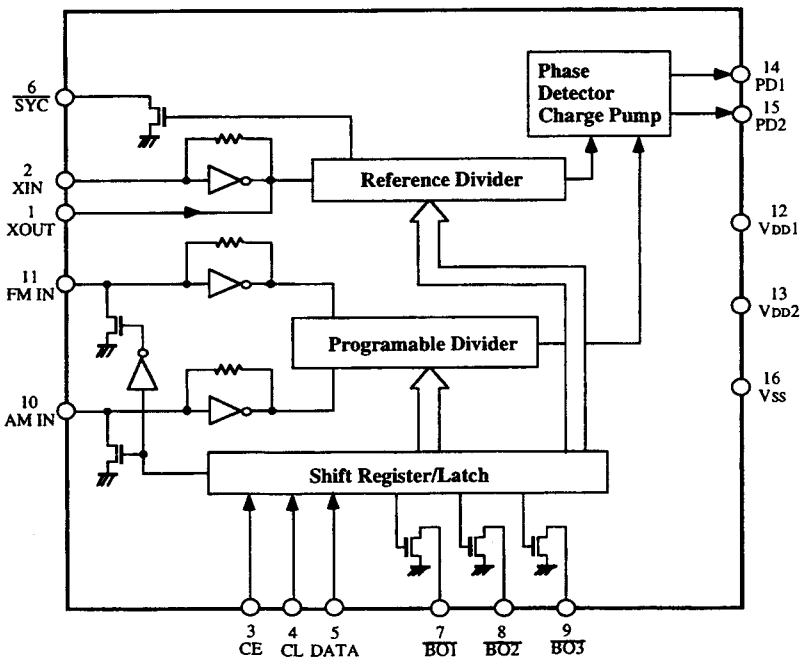
Note: SSP: IC101 CXA1372Q

BA1448S (AM Radio, FM IF, and Stereo System)



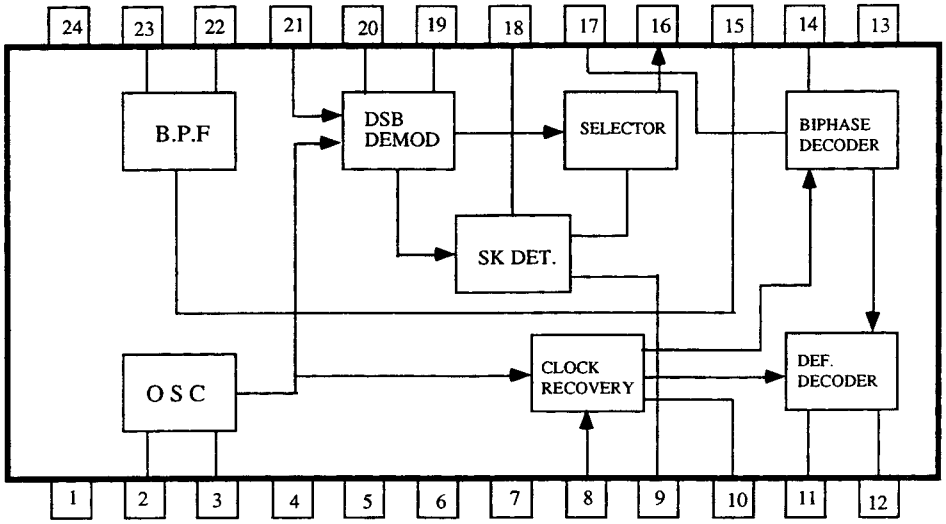
No.	Terminal Descriptions	No.	Terminal Descriptions
1	FM IF amplifier input terminal	13	Pilot filter and monaural selector terminal
2	Power supply terminal	14	FM Multiplex input terminal
3	FM tuning level adjustment terminal	15	AM detector signal input terminal
4	Ground terminal	16	FM/AM detector signal output terminal
5	FM discriminator terminal	17	AM AGC terminal
6	Tuning indicator terminal	18	AM IF input terminal
7	Stereo indicator terminal	19	AM mixer output terminal
8	IF request and Muting terminal	20	AM antenna terminal
9	IF signal terminal	21	FM band width adjustment terminal
10	Right channel output terminal	22	AM local oscillator connection terminal
11	Left channel output terminal	23	Reference voltage terminal
12	PLL filter/AM/FM band selector terminal	24	AM local oscillator output terminal

LM7001 (PLL Synthesizer and Controller)



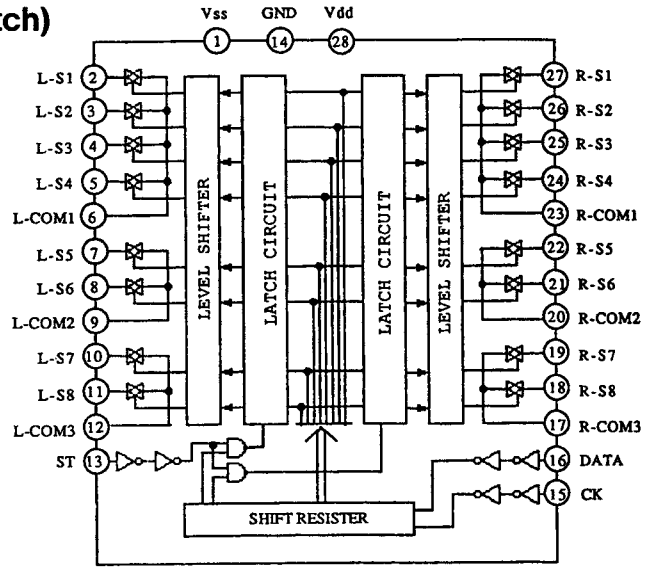
Pin No.	Terminal	Description
1	XOUT	Connect the 7.2MHz crystal resonator.
2	XIN	
3	CE	Chip enable terminal. Connect to the terminal PLLCE1 of microprocessor.
4	CL	Serial clock input terminal. Connect to the terminal PLLCL of microprocessor.
5	DATA	Serial data input terminal. Connect to the terminal PLLDATA of microprocessor.
6	$\overline{SYN}$	Not used.
7	$\overline{SAT}$/CANLE	Power source control terminal for DSR. Cable at the high level and Satellite at low.
8	LPF	LPF selector output.
9	ANT	Antenna selector output. A at high level and B at low level.
10	AMIN	AM local oscillator input terminal.
11	FMIN	FM local oscillator input terminal.
12	VDD1	Power source terminal for back-up.
13	VDD2	Power source terminal.
14	PD1	Phase comparator output
15	PD2	Phase comparator output
16	Vss	Ground terminal

μPC1346CS (RDS DECODER)

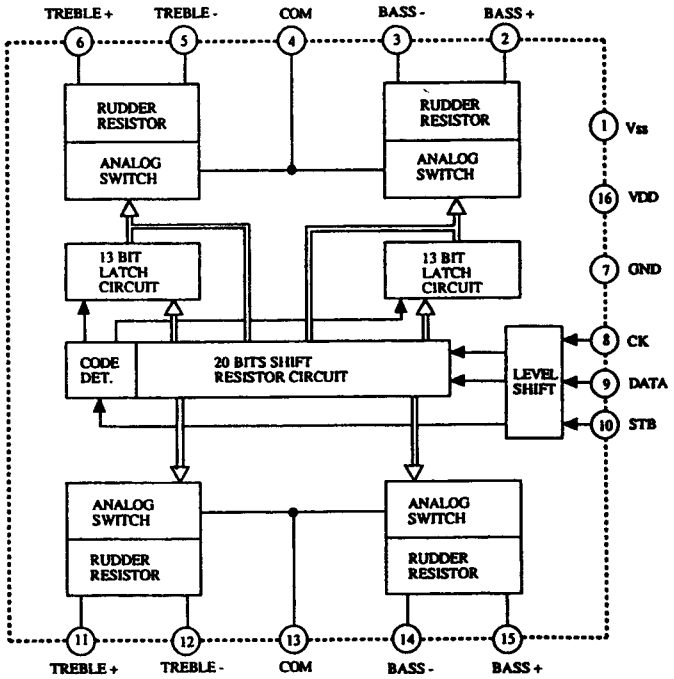


No.	Terminal	Description	No.	Terminal	Description
1	Vcc	Supply voltage for the digital circuit	13	GND	Ground for the analog circuit
2	OSC IN	Resonator input	14	INTEG	Integrating filter terminal
3	OSC OUT	Resonator output	15	BPF ADJ	Adjustment fc of band pass filter
4	GND	Ground for the digital circuit	16	PSK OUT	Biphase signal output
5	TEST1	Test input	17	PSK IN	Biphase decoder input
6	TEST2	Test input	18	LPF SK	Low pass filter for the detection SK
7	OP.CTL	Control input of the operation stop	19	LPF Q	Low pass filter for the crossed detector
8	S/L CTL	Mode control input of the synchonizing detection	20	LPF I	Low pass filter for the synchronizing detector
9	SK OUT	SK detection output	21	DSB IN	DSB demodulator circuit input
10	RDS OUT	RDS synchonizing detection output	22	BPF OUT	Band pass filter output
11	CLOCK OUT	Bit rate clock output	23	BPF IN	Band pass filter input
12	DATA OUT	RDS data output	24	Vcc	Supply voltage for analog circuit

TC9164N (Analog Switch)

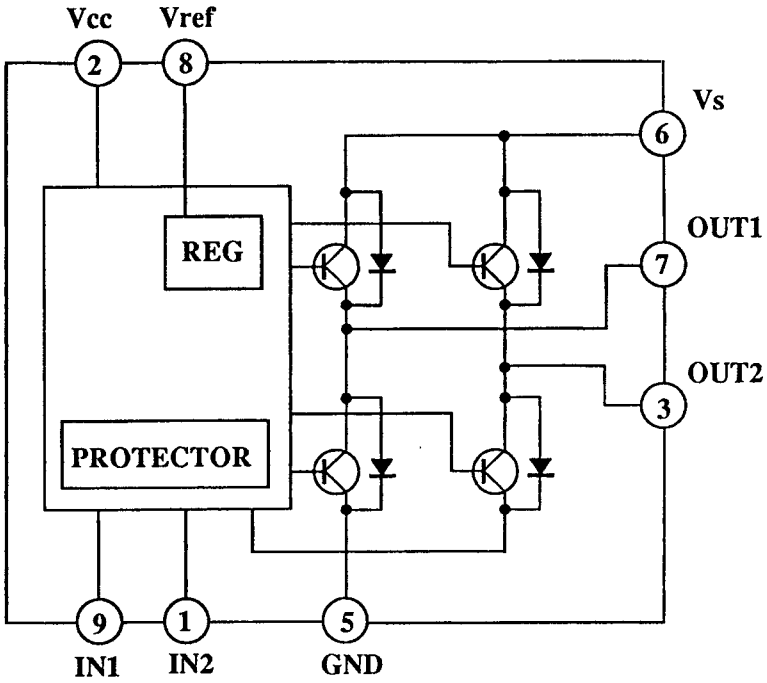


TC9184P (Electro Tone Volume)



No.	Symbol	Function
1	Vss	Power supply terminal for analogue section
16	VDD	
2,15	BASS +	Volume terminals
3,14	BASS -	
5,12	TREBLE -	
6,11	TREBLE +	
4,13	COM	
7	GND	Ground terminal for digital section
8	CK	Clock input terminal to take in the data of terminal DATA.
9	DATA	Data input terminal
10	STB	Strobe input terminal

TA7291 (VOLUME MOTOR DRIVER)



INPUT		OUTPUT		
IN1	IN2	OUT1	OUT2	MODE
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

CCW:Counter clockwise direction
CW:Clockwise direction

REMOVEMENT OF TRAY ASS'Y

Remove the top cover.

Turn the locked screw to the clockwise to release the lock of gear.(Refer fig.1)

Pull out the tray ass'y.

Remove the stopper.(Refer fig.2)

Press the tray stopper to the arrow mark direction and remove the tray ass'y.

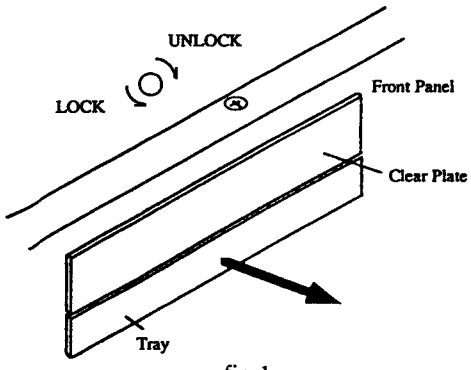


fig.1

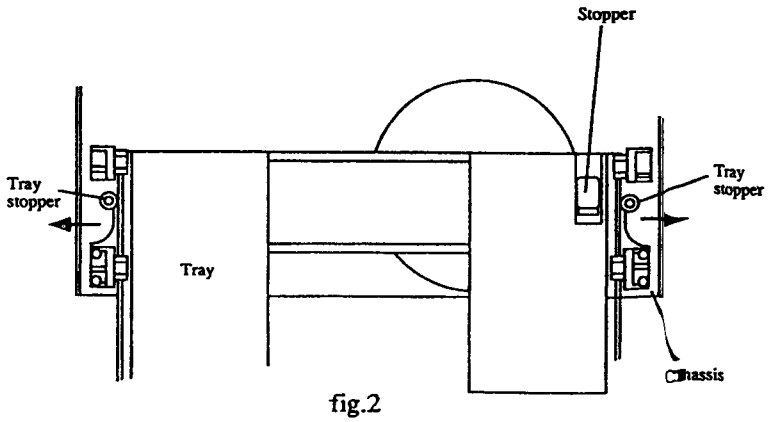
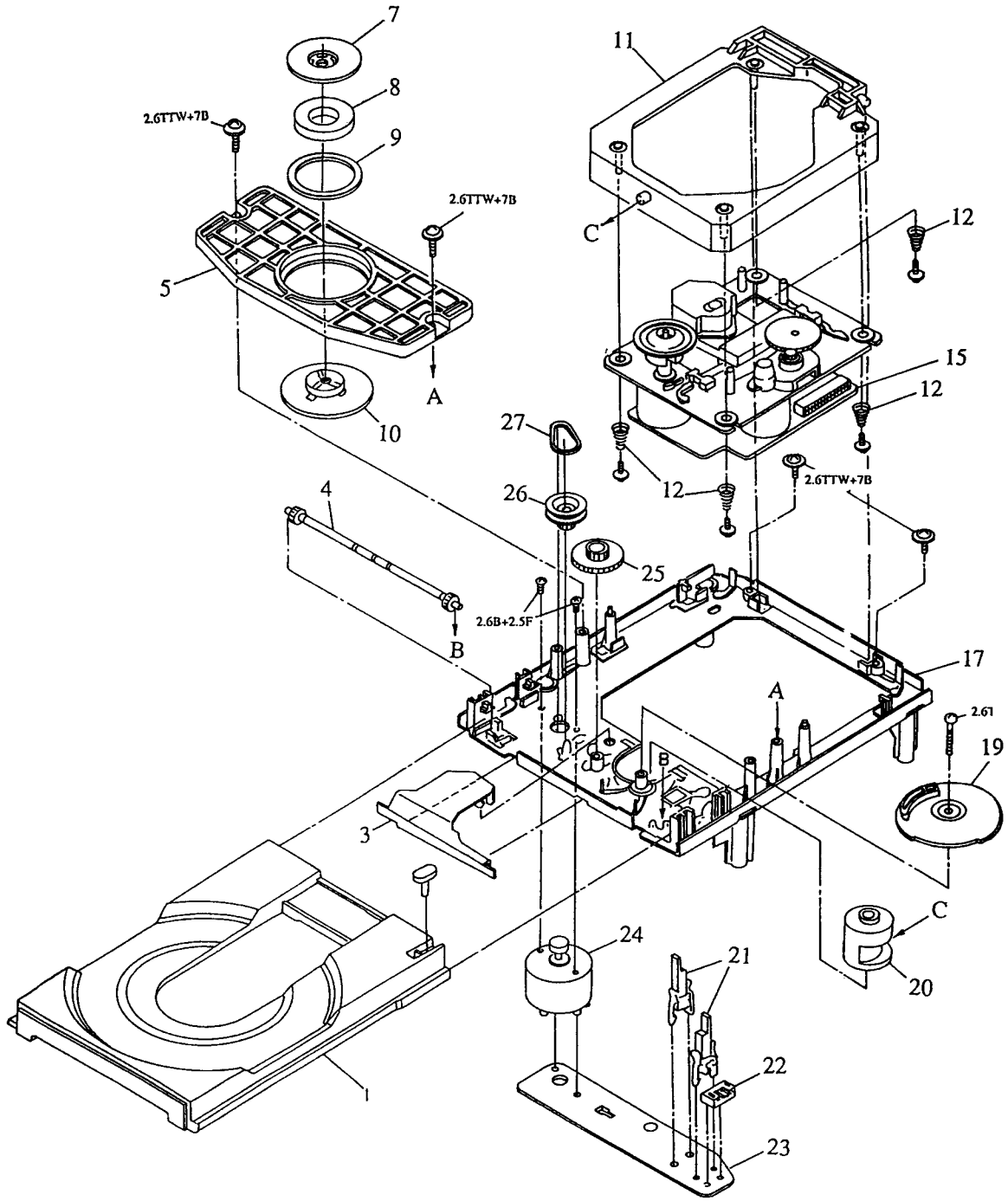
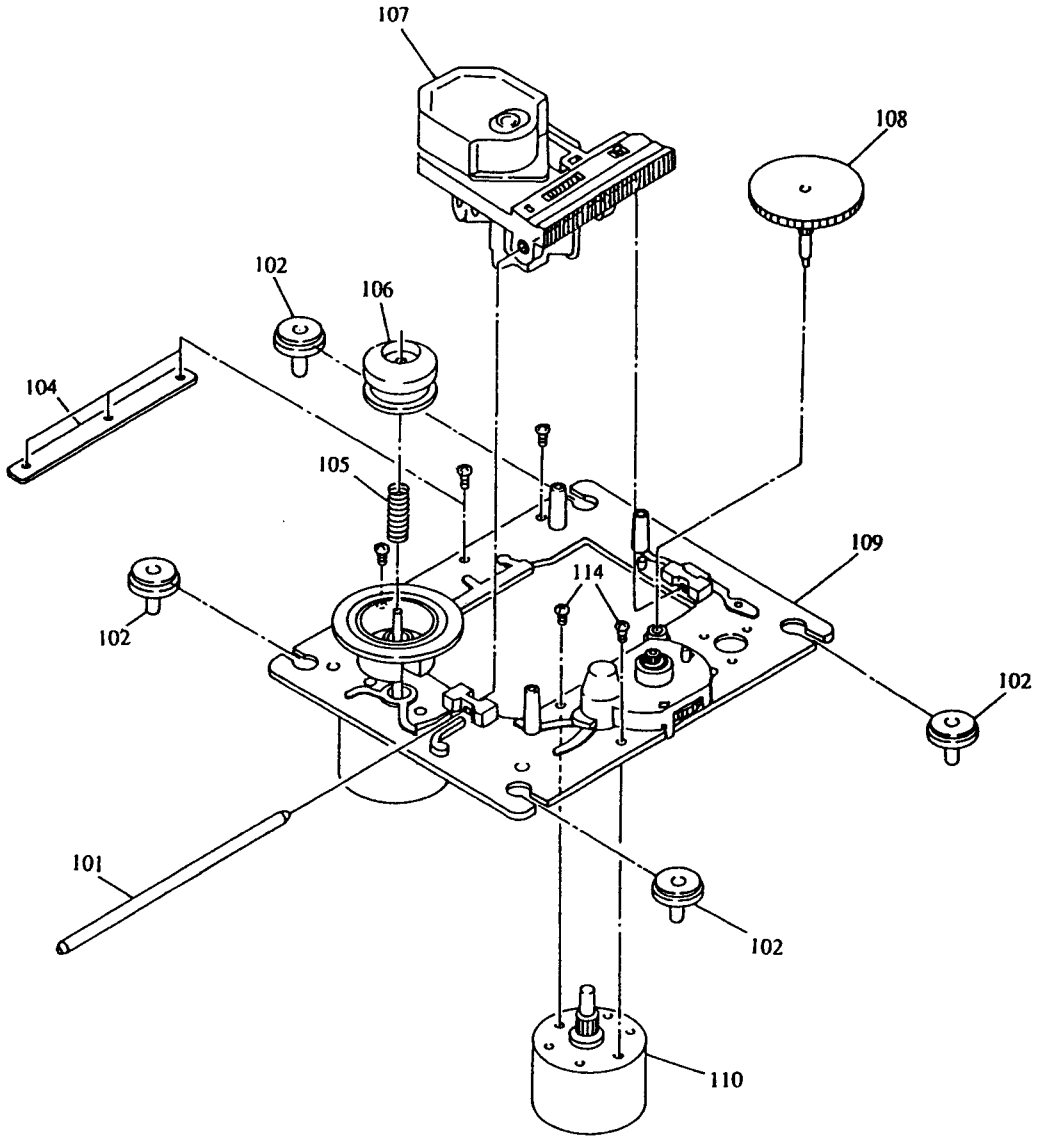


fig.2

MECHANISM-EXPLODED VIEW





PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
1	24840053	Tray
3	24822014	Gear cover
4	24810020	Tray gear
5	24840061	Chucking plate
7	24830003	Chucking yoke
8	24832004	Magnet
9	24836013	Damper
10	24810024	Chucking plate
11	24802012	Sub-chassis
12	24820023	Spring
15	24840075	CD servo pcb ass'y
17	24802013	Main chassis
19	24810021	Drive gear
20	24840063	Control cam
21	24840064	Leafswitch

REF.NO.	PART NO.	DESCRIPTION
22	25055369	NPLG-5P352,Plug
23	24840066	Loading motor pc board
24	24840067	Loading motor
25	24810022	Middle gear
26	24810025	Loading plate
27	24816008	Belt
101	24828006	Sled shaft S
102	24836014	Insulator S
104	24822015	Plate S
105	24820024	Spring
106	24824003	Center ring
107	24110011	KSS-240A,Optical pickup
108	24810023	Wheel
109	24802014	Chassis
110	24804012	Motor gear

PARTS LIST

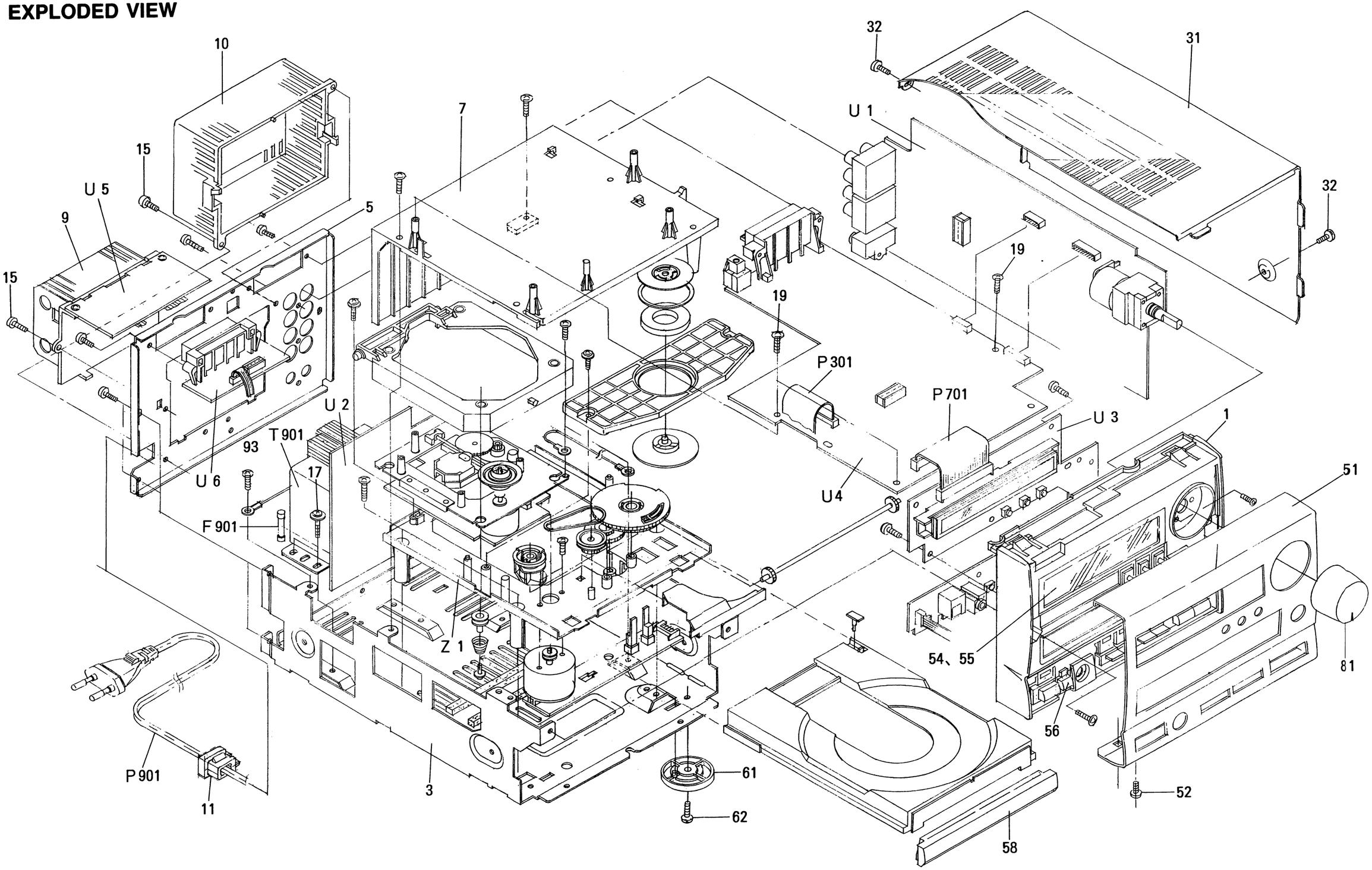
REF. NO.	PART NO.	DESCRIPTION
1	27110865	Front bracket <B>
	27110866	Front bracket <S>
3	27100296	Chassis
5	27122062	Rear panel
7	28184583	Cover, mechanism
9	27160350	Radiator
10	28184584	Cover, radiator
11	27300750	⚠ #2271, Cord bushing
15	838130088	3TTB+8B, Self-tapping screw
16	870065	Washer PT
17	830440089	4TTC+8C(BC), Self-tapping screw
18	801433	3SMS8W.SW+14B(BC), Sems screw
19	838130088	3TTB+8B, Self-tapping screw
26	28175213	Isolating plate
27	27301815	Cover F
31	28184585	Top cover <B>
	28184586	Top cover <S>
32	838430088	3TTB+8B(BC), Self-tapping screw <B>
	834230088	3TTS+8B(Ni), Nickel screw <S>
37	28141264	t5*80*15, Cushion
51	27211710	Front panel <B>
	27211711	Front panel <S>
52	801230	3TTS+8B(BC), Self-tapping screw
53	28135241Y	Badge
54	28133311	Back plate <B>
	28133260	Back plate <S>
55	28191711	Clear plate
56	28191712	Clear plate RE
58	28148307	Door <B>
	28148308	Door <S>
61	27175252-1BY	Leg
62	838130088	3TTB+8B, Self-tapping screw
64	29360687	Label CLASS 1
65	29361862	Rating label
81	28325130	Knob, volume <B>
	28325131	Knob, volume <S>
91	260208	Wire tie
92	29361731A	Label
93	834130087	3TTS+8S, Self-tapping screw

REF. NO.	PART NO.	DESCRIPTION
F901	252063	⚠ 0.5A-SE-EAWK, Primary fuse
P301	2046223012	NCFC6-223012, Flat cable
P701	2047350512	NCFC7-350512, Flat cable
P901	253193HIT	⚠ AS-CEE, Power supply cord
Q557,Q558	2202063,	2SC4511-O,
	2202064 or	2SC4511-Y or
	2202066	2SC4511-P, Transistor
Q559,Q560	2202053,	2SA1725-O,
	2202054 or	2SA1725-Y or
	2202056	2SA1725-P, Transistor
T901	2301108 or	⚠ NPT-1241P or
	2301125	⚠ NPT-1241P, Power transformer
U1	1H266558-2	NAAF-5458-2, Preamplifier circuit pc board ass'y
U2	1H266559-2	NAPS-5459-2, Power supply circuit pc board ass'y
U3	1H266560-2	NADIS-5460-2, Display circuit pc board ass'y
U4	1H266562-2	NAAR-5462-2, Tuner circuit pc board ass'y
U5	1H266563-2	NAAF-5463-2, Main amplifier circuit pc board ass'y
U6	1H266564-2	NAETC-5464-2, Speaker terminal pc board ass'y
Z1	24800009C	NCD-130S, CD mechanism ass'y

NOTE: <B>: Black model only
<S>: Silver model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

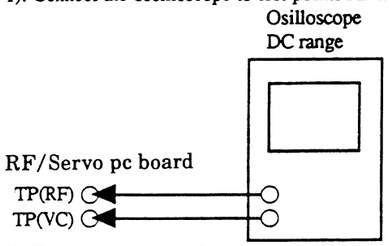
EXPLODED VIEW



ADJUSTMENT PROCEDURES

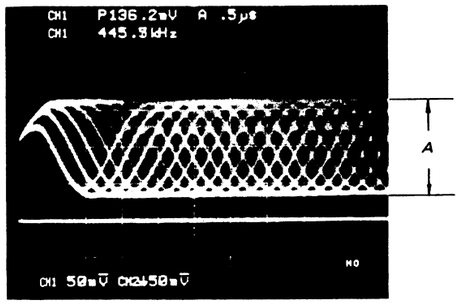
It is not necessary to perform the adjustment of optical pickup.
This confirmation should be made when replacing the optical pickup.

1). Connect the oscilloscope to test points RF and VC.



2). Turn the power switch on.
3). Load the test disc YEDS-18 on the tray and press the play button.
4). Confirm that the waveform on the oscilloscope is optimum eye pattern and optimum level as shown photo 1.
Optimum eye pattern means that shape "◇" can be clearly distinguished at the center of the waveform.

RF signal waveform



A = 1.2V ± 0.2 (Vp-p)

REFERENCE

Focus/Tracking Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

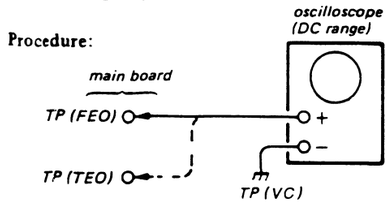
Symptoms \ Gain	Focus	Tracking
• The time until music starts becomes longer for STOP →▷PLAY or automatic selection (⏮ ⏭buttons pressed. (Normally takes about 2 seconds.)	low	low or high
• Music does not start and disc continues to rotate for STOP→▷PLAY or automatic selection (⏮ ⏭buttons pressed.)	–	low
• Sound is interrupted during PLAY. Or time counter display stops progressing.	–	low
• More poise during 2-axis device operation.	high	high

The following is a simple adjustment method.

– Simple Adjustment –

Note: Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

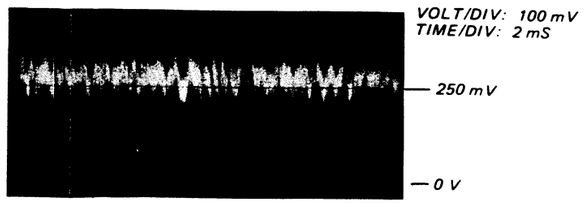
Procedure:



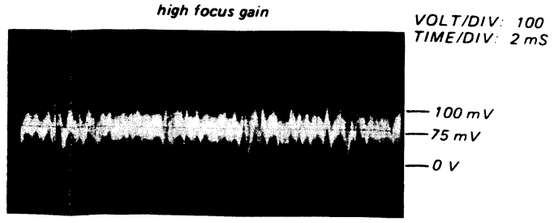
1. Keep the set horizontal.
(If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.)
2. Insert disc (YEDS-18) and press ▷PLAY button.
3. Connect oscilloscope to RF/Servo board TP (FE).
4. Adjust RV102 so that the waveform is as shown in the figure below. (focus gain adjustment)

- Incorrent Examples (DC level changes more than on adjusted waveform)

low focus gain



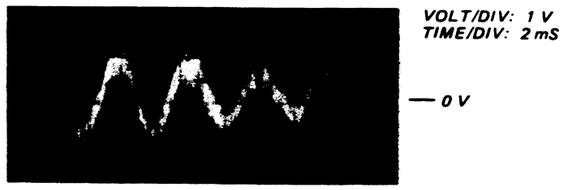
high focus gain



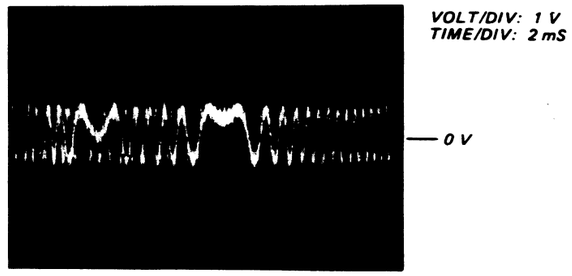
5. Connect oscilloscope to RF/Servo board TP (TE).
6. Adjust RV101 so that the waveform is as shown in the figure below. (tracking gain adjustment)

- Incorrect Examples (fundamental wave appears)

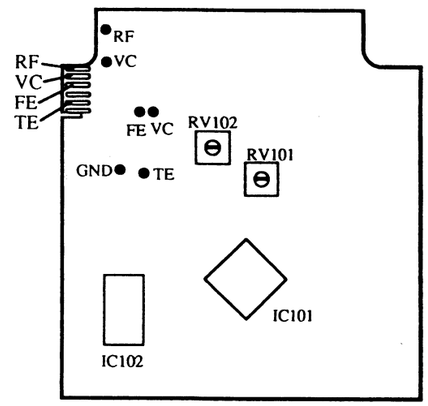
low tracking gain



high tracking gain
(higher fundamental wave than for low gain)



Adjustment Location: RF/Servo board



ADJUSTMENT PROCEDURES

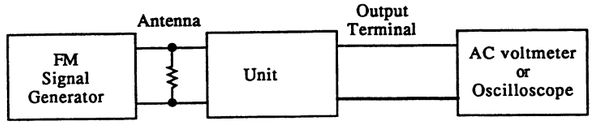
Preparation

1. Input
FM mono: 1kHz, 75kHz devi., 60dB/μ V
FM stereo: 1kHz, 67.5kHz devi., 60dB/μ V
Pilot signal 19kHz 7.5kHz devi.

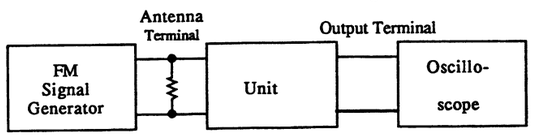
2. Outputs
Connect the non-inductive type resistor of 8 ohms to the all speaker terminals unless otherwise noted.

FM ADJUSTMENT

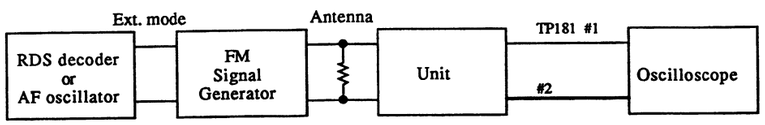
Item	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM RF	Fig.1	99.0MHz 1kHz 75kHz devi. 65dBf(60dB)	——	99.0MHz	AC voltmeter	IFT on the front end	Maximum	FM MUTE/MODE switch:MONO
Muting Level	Fig.2	99.0MHz 19.2dBf(14dB)	——	99.0MHz	Oscilloscope	R101	Signal output	FM MUTE/MODE switch:AUTO
RDS	Fig.3	99.0MHz Ext. mod.60dB	RDS data or 57kHz 3% devi.	99.0MHz	Oscilloscope	R181	Maximum	



<Fig. 1>



<Fig. 2>



<Fig. 3>

SERVICE PROCEDURES

1. Replacing the fuses

This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.

Ce symbole indique que le fusible utlise est a rapide. Pour une protection permanente, n'utiliser que des fusibles de meme type. Ce darnier est indique la qu le present symbol est appose.

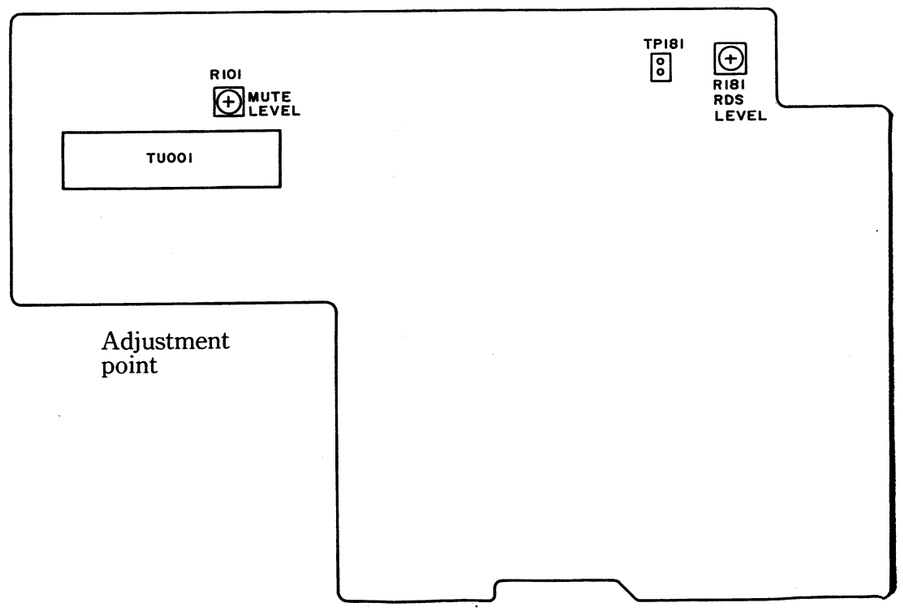
CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252063	0.5A-SE-EAK, Primary

2. To Initialize the unit

This device employs a microprocessor to perform various functions and operations. If interference generated by an external power supply, radio wave, or other electrical source results in accident which causes the specified operations and functions to operate abnormally.

To perform a result, please follow the procedure below.

1. **Press and hold down the MEMORY button, then press the OPEN/CLOSE button.**
2. **Press the POWER button.**
3. **After "clear" is displayed, the preset memory and each mode stored in the memory, are initialized and will return to the factory settings.**



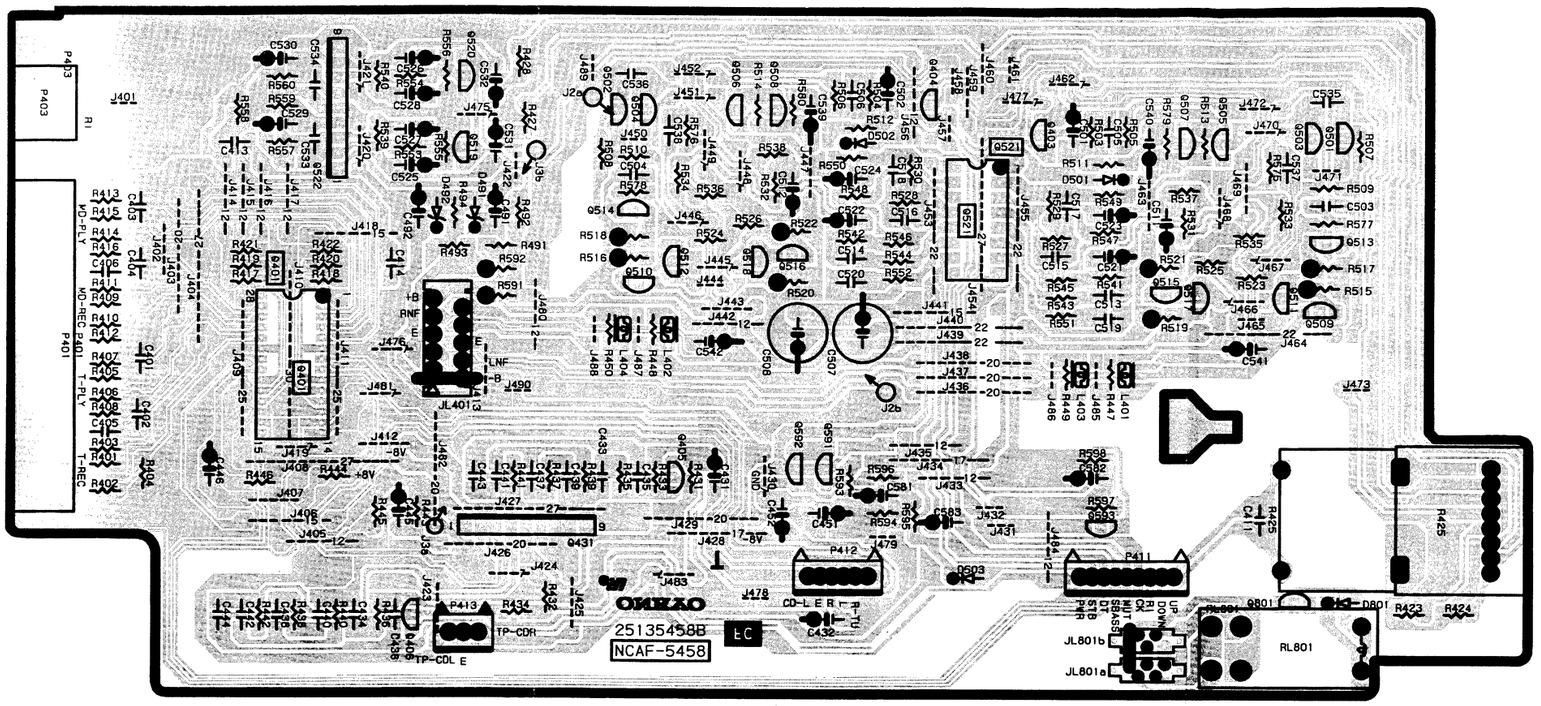
3. Safety-check out

After correcting the original service problem, perform the following safety check before releasing the set to the customer. Connect the insulating-resistance tester between the plug of power supply cord and the screw on the back panel.
Specifications: More than 10 MΩ at 500V.

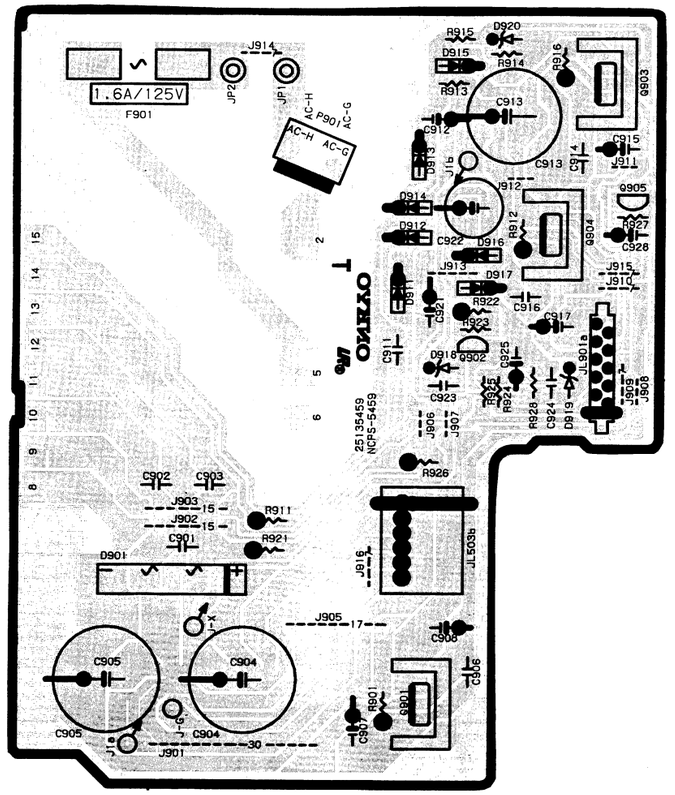
4. Memory preservation

This unit does not require memory preservation batteries.
A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged.
The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month the keep the back-up system operative.
The period of the time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorted when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

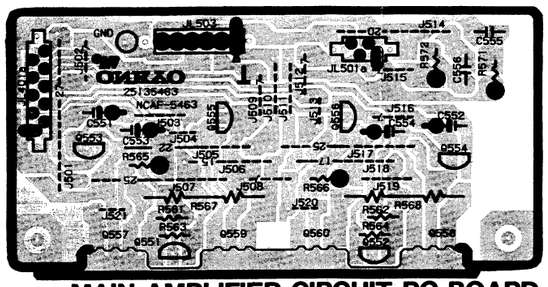
PC BOARD VIEW FROM BOTTOM SIDE



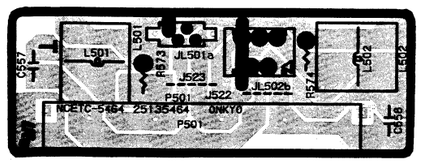
PREAMPLIFIER CIRCUIT PC BOARD



POWER SUPPLY CIRCUIT PC BOARD

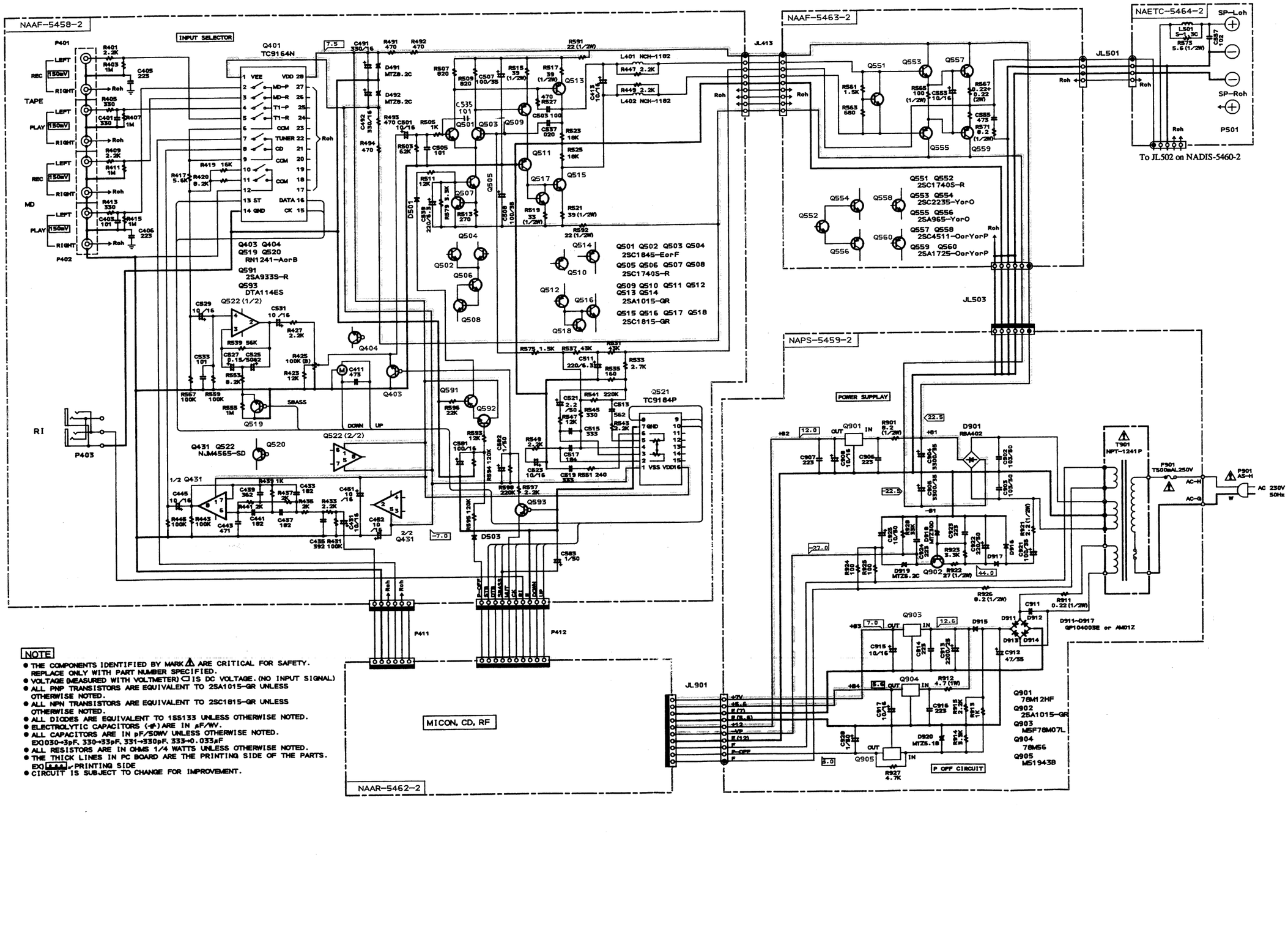


MAIN AMPLIFIER CIRCUIT PC BOARD



SPEAKER TERMINAL PC BOARD

SCHEMATIC DIAGRAM



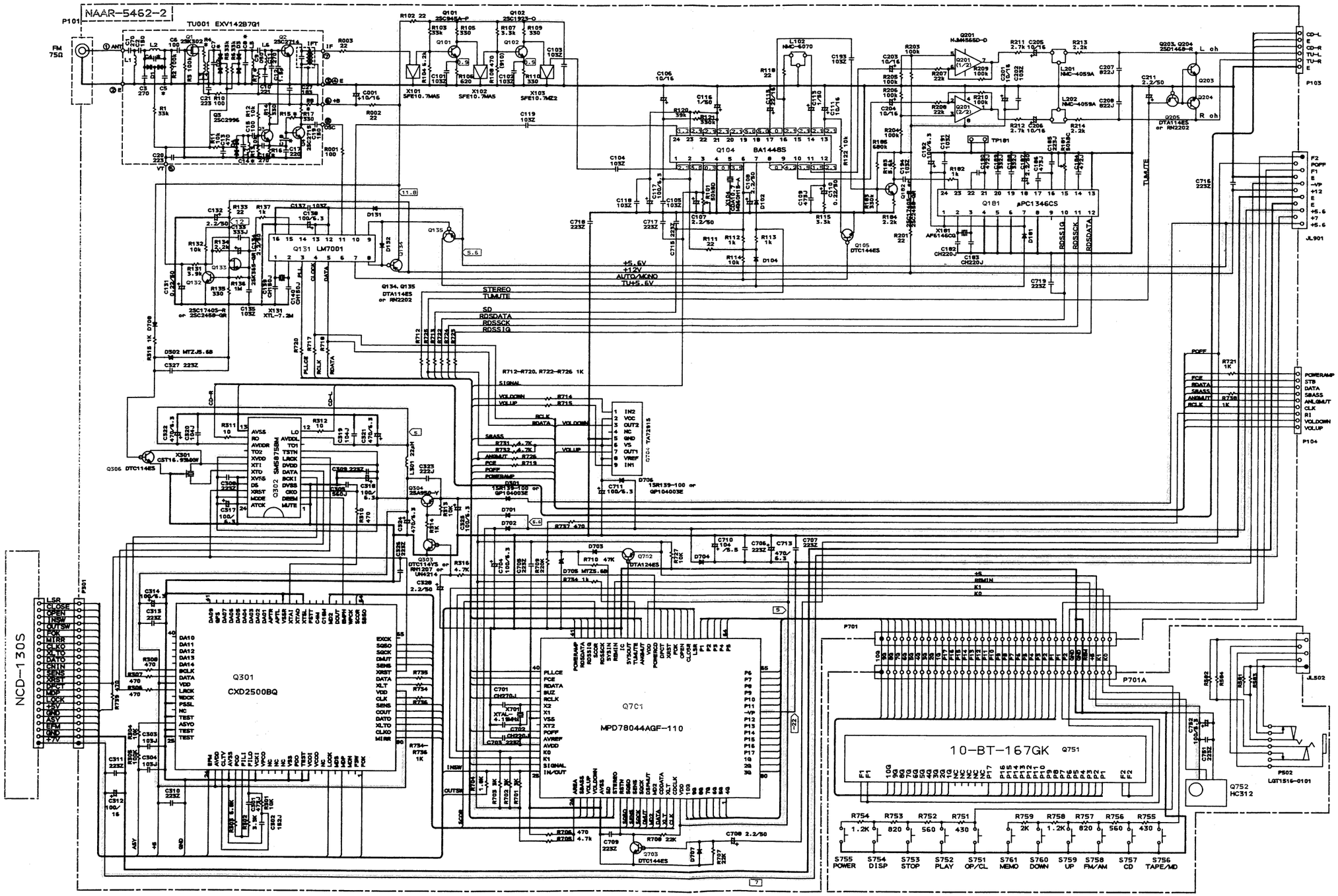
NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⊐ IS DC VOLTAGE. (NO INPUT SIGNAL)
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (◦μ) ARE IN μF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX) 0.033→3pF, 330→33pF, 331→330pF, 333→0.033μF
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES IN PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) ▭ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

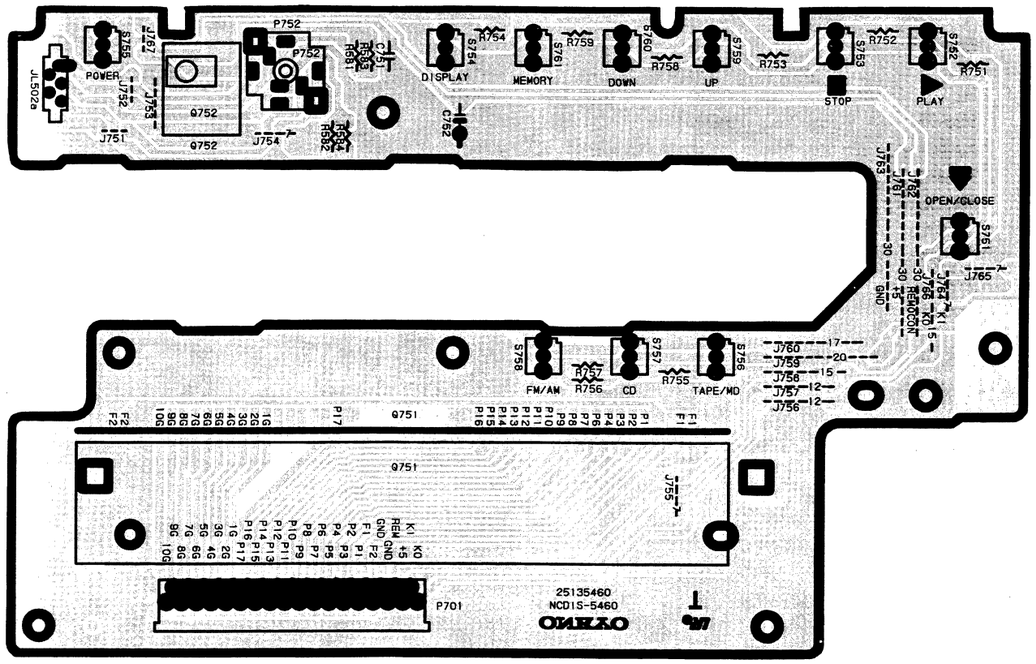
A B C D E F G

1 2 3 4 5

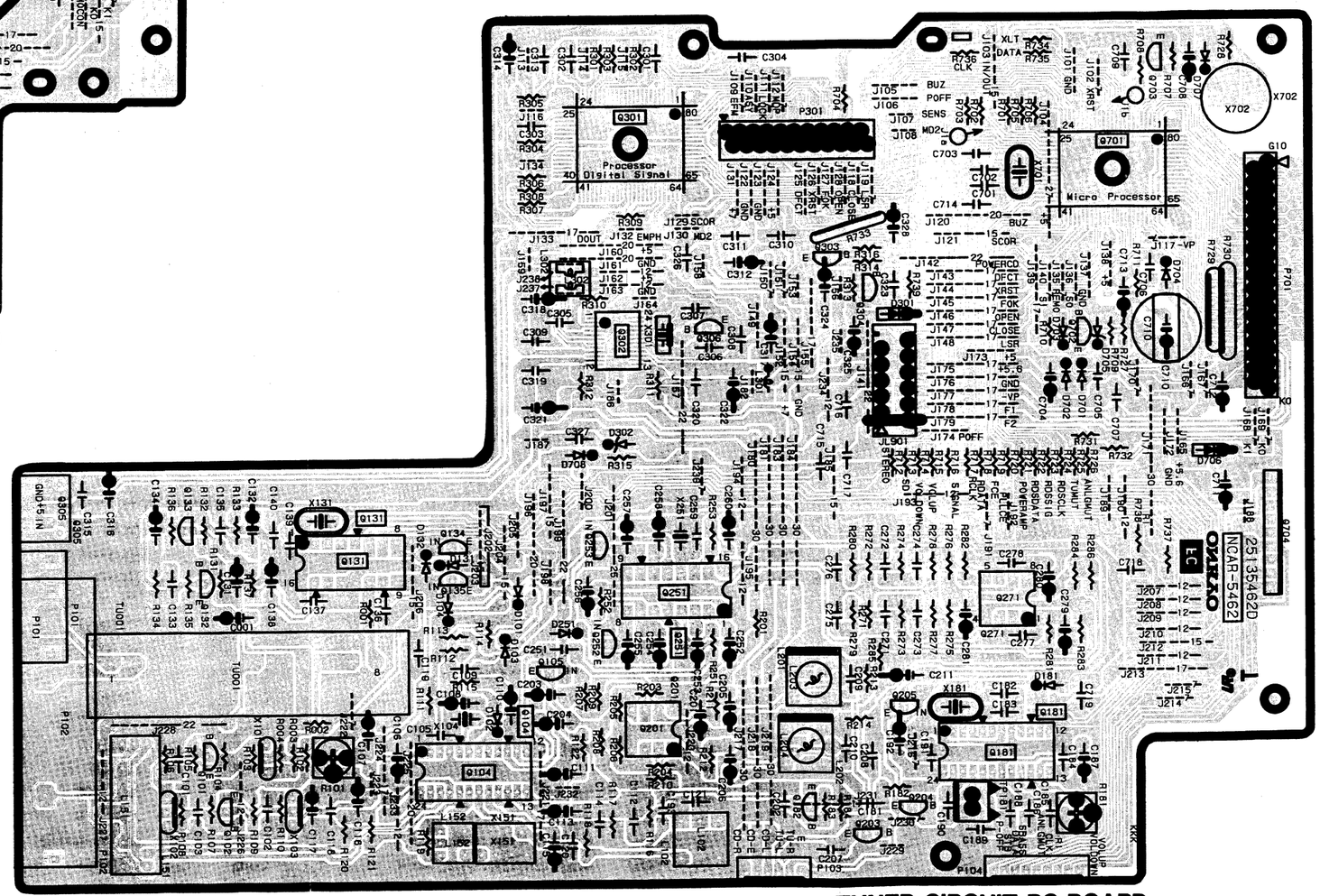
SCHEMATIC DIAGRAM



PC BOARD VIEW FROM BOTTOM SIDE



DISPLAY CIRCUIT PC BOARD



TUNER CIRCUIT PC BOARD

PRINTED CIRCUIT BOARD – PARTS LIST

PREAMPLIFIER CIRCUIT PC BOARD (NAAF-5458-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q401	22240800	TC9164AN
Q431	22240273	NJM4565S-D
Q521	22240605	TC9184P
Q522	22240273	NJM4565S-D
	Transistors	
Q403,Q404	2213631 or	RN1241-A or
	2213632	RN1241-B
Q501~Q504	2211733 or	2SC1845-E or
	2211732	2SC1845-F
Q505~Q508	2213284	2SC1740S-R
Q509~Q514	2211455	2SA1015-GR
Q515~Q518	2211255	2SC1815-GR
Q519,Q520	2213631 or	RN1241-A
	2213632	RN1241-B
Q591	2213354	2SA933S-R
Q592	2213284	2SC1740S-R
Q593	2213510	DTA114ES
	Diodes	
D491,D492	224470823	MTZJ8.2C, Zener
D501~D503	223205 or	1SS270A
	223163	1SS133
	Coils	
L401~L404	231126	NCH-1182
	Capacitors	
C431,C432	393341007	10 μ F,16V,Elect.
C433,C434	374721824	1800pF±5%,50V,Plastic
C435,C436	374723924	3900pF±5%,50V,Plastic
C437,C438	374721824	1800pF±5%,50V,Plastic
C439,C440	374723624	3600pF±5%,50V,Plastic
C441,C442	374721824	1800pF±5%,50V,Plastic
C443,C444	374724714	470pF±5%,50V,Plastic
C445,C446	393341007	10 μ F,16V,Elect.
C451,C452	393341017	100 μ F,16V,Elect.
C491,C492	393343317	330 μ F,16V,Elect.
C501,C502	393341007	10 μ F,16V,Elect.
C507,C508	393361017	100 μ F,35V,Elect.
C511,C512	393322217	220 μ F,6.3V,Elect.
C513,C514	374725624	5600pF±5%,50V,Plastic
C515,C516	374723334	0.033 μ F±5%,50V,Plastic
C517,C518	374721844	0.18 μ F±5%,50V,Plastic
C519,C520	374723334	0.033 μ F±5%,50V,Plastic
C521,C522	393380227	2.2 μ F,50V,Elect.
C523,C524	393341007	10 μ F,16V,Elect.
C525-C528	354781599	0.15 μ F,50V,Elect.
C531,C532	393341007	10 μ F,16V,Elect.
C539,C540	393322217	220 μ F,6.3V,Elect.
C581	354741019	100 μ F,16V,Elect.
C582,C583	393380107	1 μ F,50V,Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors	
R425	5104338	N16RQL100KBT25F, Variable
R515~R518	443523904	39 Ohm±5%, 1/2W, Metal oxide
R519,R520	443523304	33 Ohm±5%, 1/2W, Metal oxide
R521,R522	443523904	39 Ohm±5%, 1/2W, Metal oxide
R591,R592	443522204	22 Ohm±5%, 1/2W, Metal oxide
	Terminals	
P401,P402	25045303	NPJ-4PDBL162
P403	25045330	NPJ-2PDBL184
	Plugs	
P411	25055705	NPLG-9P661, P PLUG
P412	25055702	NPLG-6P658, P PLUG

POWER SUPPLY CIRCUIT PC BOARD (NAPS-5459-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q703	222780075MIT	M5F78M07L
Q901	222780125NEC	78M12HF
Q904	222780565JRC	78M56
Q905	222951	M51943B
	Transistor	
Q902	2211455	2SA1015-GR
	Diodes	
D901	22380022 or	RBV402 or
	22380271	D3SBA20
D911~D917	22380035 or	GP104003E or
	22380046	AM01Z
D918	224452704	MTZJ27D, Zener
D919	224470623	MTZJ6.2C, Zener
D920	224450512	MTZ5.1B, Zener
	Capacitors	
C901,C911	374721034	0.01 μ F±5%,50V,Plastic
C902,C903	374721044	0.1 μ F±5%,50V,Plastic
C904,C905	354763329	3300 μ F,35V,Elect.
C908,C915	393341007	10 μ F,16V,Elect.
C912	354764709	47 μ F,35V,Elect.
C913	354743329	3300 μ F,16V,Elect.
C917,C927	393341007	10 μ F,16V,Elect.
C921	354761019	100 μ F,35V,Elect.
C922	354782219	220 μ F,50V,Elect.
C925	354781009	10 μ F,50V,Elect.
C928	393380107	1 μ F,50V,Elect.
	Resistors	
R922	443522704T	27 Ohm±5%, 1/2W, Metal oxide
R921	453530224T	2.2 Ohm±5%, 1/2W, Metal
R901,R926	453530824T	8.2 Ohm±5%, 1/2W, Metal
R911	453534794T	0.47 Ohm±5%, 1/2W, Metal
R912	453630474T	4.7 Ohm±5%, 1W, Metal
	Fuse	
F901	252063	⚠ 0.5A-SE-EAWK
	Fuseholders	
F901a	25050065	⚠ YSH403T, FUSE HOL

CIRCUIT NO.	PART NO.	DESCRIPTION
	Fuse label	
F901b	29361881	T500mAL250V, SPEC LABEL
	Plug	
P901a	25055676	NPLG-2P632, P PLUG
	Wire holder	
JL901a	25051095	NSCT-11P882
	Wire trap	
JL503b	25050283	NSCT-6P111
	Radiators	
Q901a,Q903a	27160145	
Q904a	27160315	RAD-95(B)

DISPLAY CIRCUIT PC BOARD (NADIS-5460-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	FL tube	
Q751	212141	10-BT-167GK
	Remote control sensor	
Q752	24130010	HC312
	Capacitor	
C752	355721019	100 μ F,6.3V,Elect.
	Switches	
S751~S761	25035652	NPS-111-S604
	Socket	
P701	25050941	NSCT-35P728
	Terminal	
P752	25045396	LGT1516-0101, Headphone
	Wire holder	
JL502a	25051089	NSCT-5P876
	Holder	
	27190943	(FL)

TUNER CIRCUIT PC BOARD (NAAR-5462-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end	
TU001	240102	FE417-G02, FRONTEND
	ICs	
Q104	22240883	BA1448S
Q131	22240090	LM7001
Q181	22240679	MPC1346CS
Q201	222502	NJM4558D-X
Q301	22240487A or	CXD2500BQ or
	22240487	CXD2500AQ
Q302	22240832R9	SM5875BM
Q701	22240905	MPD78044AGF-123
Q704	22240239	TA7291S
	Optical module	
Q305	24120038	GP1F32
	Transistors	
Q101	2210746	2SC945A-P
Q102	2211723	2SC1923-O
Q105	221282	DTC144ES
Q132,Q182	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q133	2212445T	2SK365-GR
Q134,Q135	2213510 or	DTA114ES or
Q205	2214350	RN2202
Q203,Q204	2212794	2SD1468-R
Q303	221281,	DTC114YS,
	2214930 or	UN4214 or
	2213570	RN1207
Q304	2211504	2SA950-Y
Q306,Q703	221282	DTC144ES
Q702	2212600	DTA124ES
	Diodes	
D102,D104	223205 or	1SS270A or
D131,D132	223163	1SS133
D181	223205 or	1SS270A or
D701~D704	223163	1SS133
D301,D706	22380035 or	GP104003E or
	22380032	1SR139-100
D302	224470562	MTZJ5.6B, Zener
D705	224450562	MTZ5.6B, Zener
D707,D708	223205 or	1SS270A or
	223163	1SS133
	Coils	
L102	233383	NMC-6070, MPX
L201,L202	233355A	NMC-4059, MPX
L301	233454K220	NCH-1452, 220K, Choke
	Ceramic filters	
X101,X102	3010071	SFE10.7MA5 (RED)
X103	3010130	SFE10.7MZ2A
X104	3010258	CDA10.7-MG60H15-A
	Resonators	
X131	3010141	XTL-7.2M, Crystal
X181	3010203	AF6146CG, Crystal
X301	3010230T	CST16.93MXW040, Ceramic
X701	3010224	XTAL-4.19MHz, Crystal
	Capacitors	
C001,C106	393341007	10 μ F,16V,Elect.
C107,C108	354780229	2.2 μ F,50V,Elect.
C109,C186	374724734	0.047 μ F±5%,50V,Plastic
C110,C131	354782299	0.22 μ F,50V,Elect.
C111,C201	393341007	10 μ F,16V,Elect.
C113	393380107	1 μ F,6.3V,Elect.
C115	354742209	22 μ F,16V,Elect.
C116	354780109	1 μ F,50V,Elect.
C117,C138	354721019	100 μ F,6.3V,Elect.
C132,C134	354780229	2.2 μ F,50V,Elect.
C133	374723334	0.033 μ F±5%,50V,Plastic
C138	354721019	100 μ F,6.3V,Elect.
C184,C190	374724724	4700pF±5%,50V,Plastic
C185	374722234	0.022 μ F±5%,50V,Plastic
C187,C211	354780229	2.2 μ F,50V,Elect.
C188,C189	374723324	3300pF±5%,50V,Plastic
C192	354721019	100 μ F,6.3V,Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C203~C206	393341007	10 μF,16V,Elect.
C207,C208	374728224	8200pF±5%,50V,Plastic
C209,C210	374724724	4700pF±5%,50V,Plastic
C301	374724734	0.047 μF±5%,50V,Plastic
C302	374721524	1500pF±5%,50V,Plastic
C303,C304	374721034	0.01 μF±5%,50V,Plastic
C312	393341017	100 μF,16V,Elect.
C314,C316	393321017	100 μF,6.3V,Elect.
C317,C318	393321017	100 μF,6.3V,Elect.
C319,C320	374721044	0.1 μF±5%,50V,Plastic
C321,C322	393324717	470 μF,6.3V,Elect.
C323	374722224	2200pF±5%,50V,Plastic
C324	393324717	470 μF,6.3V,Elect.
C325	393321017	100 μF,6.3V,Elect.
C328,C708	393380227	2.2 μF,50V,Elect.
C704,C711	354721019	100 μF,6.3V,Elect.
C710	3000076	0.1F, 5.5V, Super
C713	354724719	470 μF,6.3V,Elect.
	Resistors	
R101,R181	5210265T	N06HR50KBC, Trimming
	Terminal	
P101	25060231	NTM-1PD153, Antenna
	Sockets	
P103	25051231	NSCT-6P1021
P104	25051234	NSCT-9P1024
P301	25050962 or	NSCT-22P749
	25050854	NSCT-22P649
P701	25050975 or	NSCT-35P762
	25050865	NSCT-35P660
	Plug	
TP181	25055038	NPLG-2P29, P PLUG
	Wire trap	
JL901	25055632	NPLG-11P594

POWER AMPLIFIER CIRCUIT PC BOARD (NAAF-5463-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q551,Q552	2213284T	2SC1740S-R
Q553,Q554	2211654 or	2SC2235-Y or
	2211653	2SC2235-O
Q555,Q556	2211644 or	2SA965-Y or
	2211643	2SA965-O
Q557,Q558	2202063,	* 2SC4511-O,
	2202064 or	* 2SC4511-Y or
	2202066	* 2SC4511-P
Q559,Q560	2202053,	* 2SA1725-O,
	2202054 or	* 2SA1725-Y or
	2202056	* 2SA1725-P
	Capacitors	
C551~C554	393341007	10 μF,16V,Elect.
C555,C556	374724734T	0.047 μF±5%,50V,Plastic

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors	
R565,R566	443521014	100 Ohm±5%, 1/2W, Metal oxide
R567,R568	4500027	MPC708-2WK, 0.22, Metal plate
R571,R572	453530824	8.2 Ohm±5%, 1/2W, Metal oxide
	Wire holders	
JL401a	25051094	NSCT-10P881
JL501a	25051088	NSCT-4P875
JL503a	25051109	NSCT-5P896

SPEAKER TERMINAL PC BOARD (NAETC-5464-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Coils	
L501,L502	231176S	S-1.3C, S COIL
	Resistors	
R573,R574	453530564T	5.6 Ohm±5%, 1/2W, Metal
	Terminal	
P501	25060086	NTM-4PDML30
	Wire holder	
JL501a	25051088	NSCT-4P875
	Wire trap	
JL502b	25055626	NPLG-5P588

CD MECHANISM PC BOARD

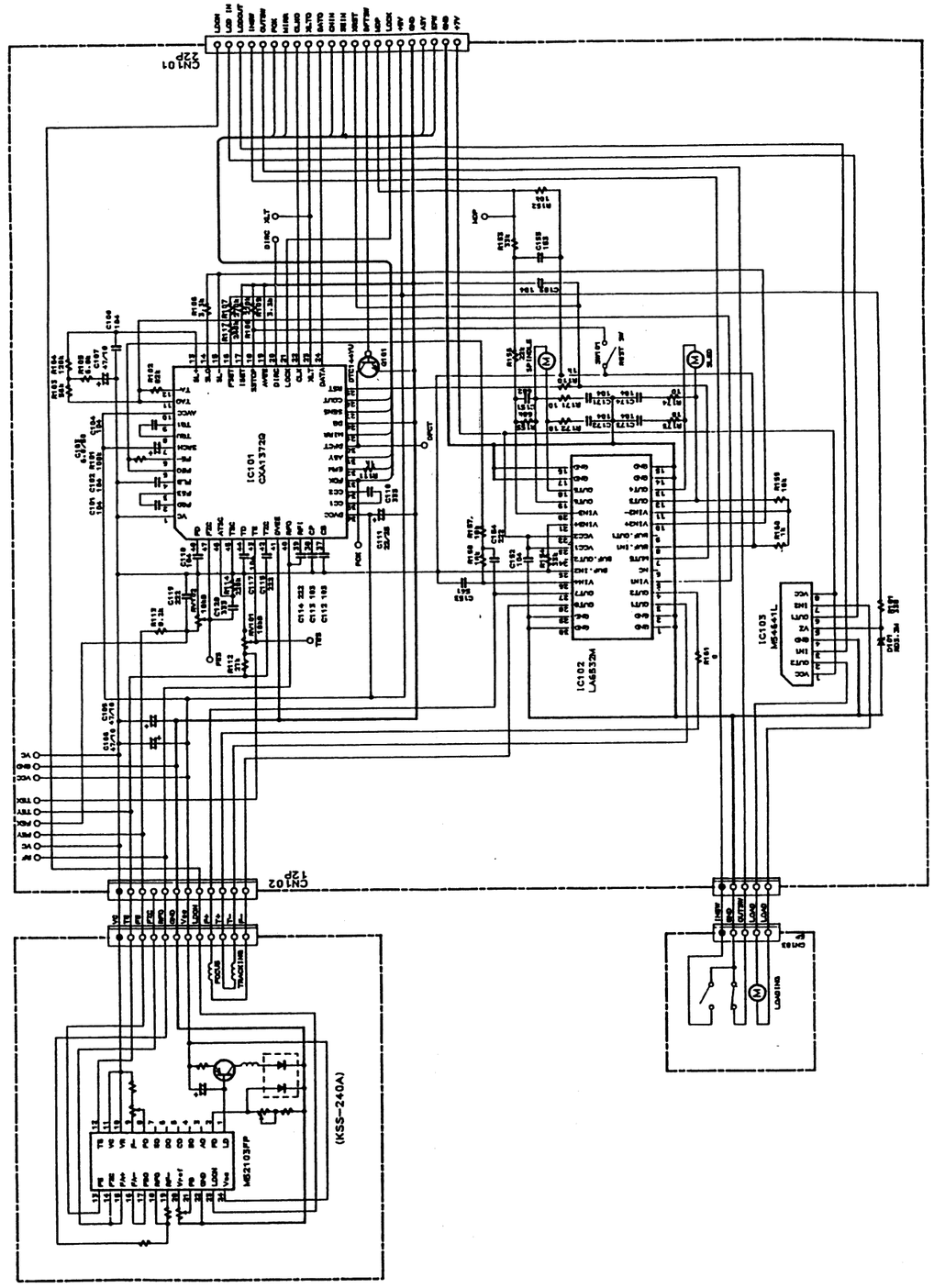
CIRCUIT NO.	PART NO.	DESCRIPTION
IC101	24840089	CXA1372AQ, IC
IC102	22240551	LA6532M-T1, IC
IC103	22240101	M54641L, IC
RV101,RV102	24840085	10K, Trim resistor
SW101	24840070	Leafswitch
CN101	24840072	Connector pin
CN102	24840071	Connector socket

CAUTION: Replacement for transistor of mark * , if necessary must be made from the same beta group (HFE) as the original type.

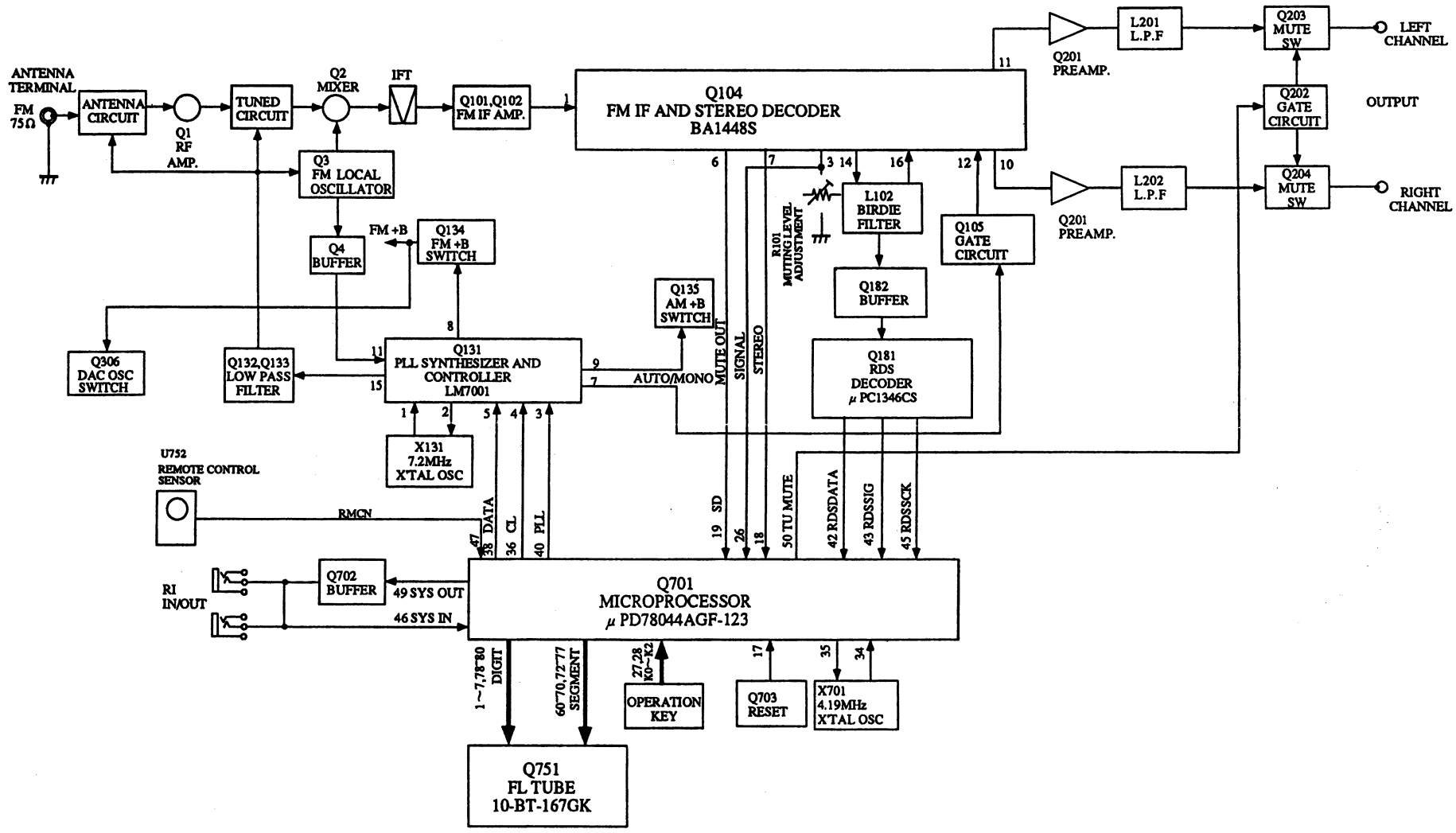
NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

SCHEMATIC DIAGRAM

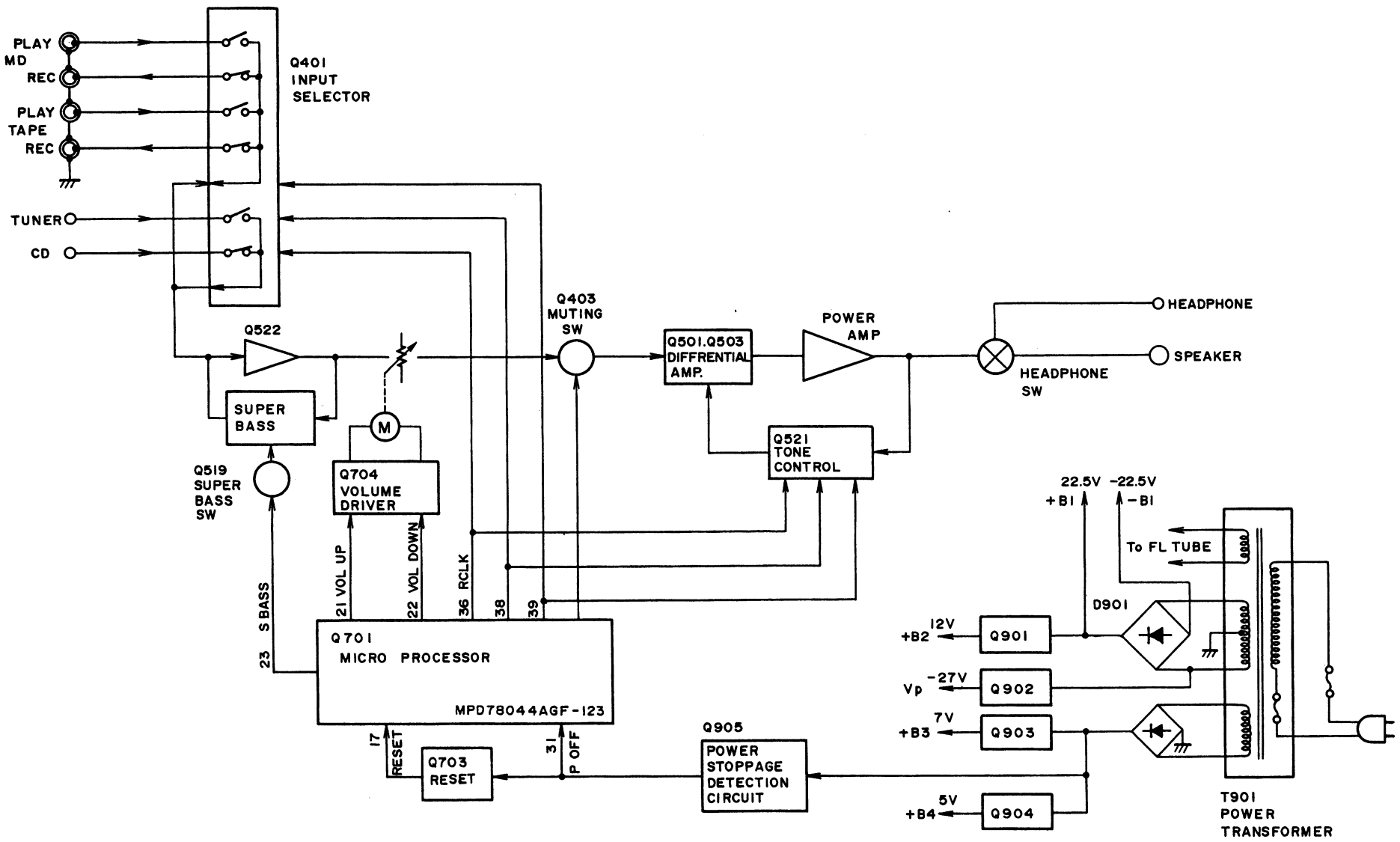
— CD mechanism section —



BLOCK DIAGRAM
—Tuner section—

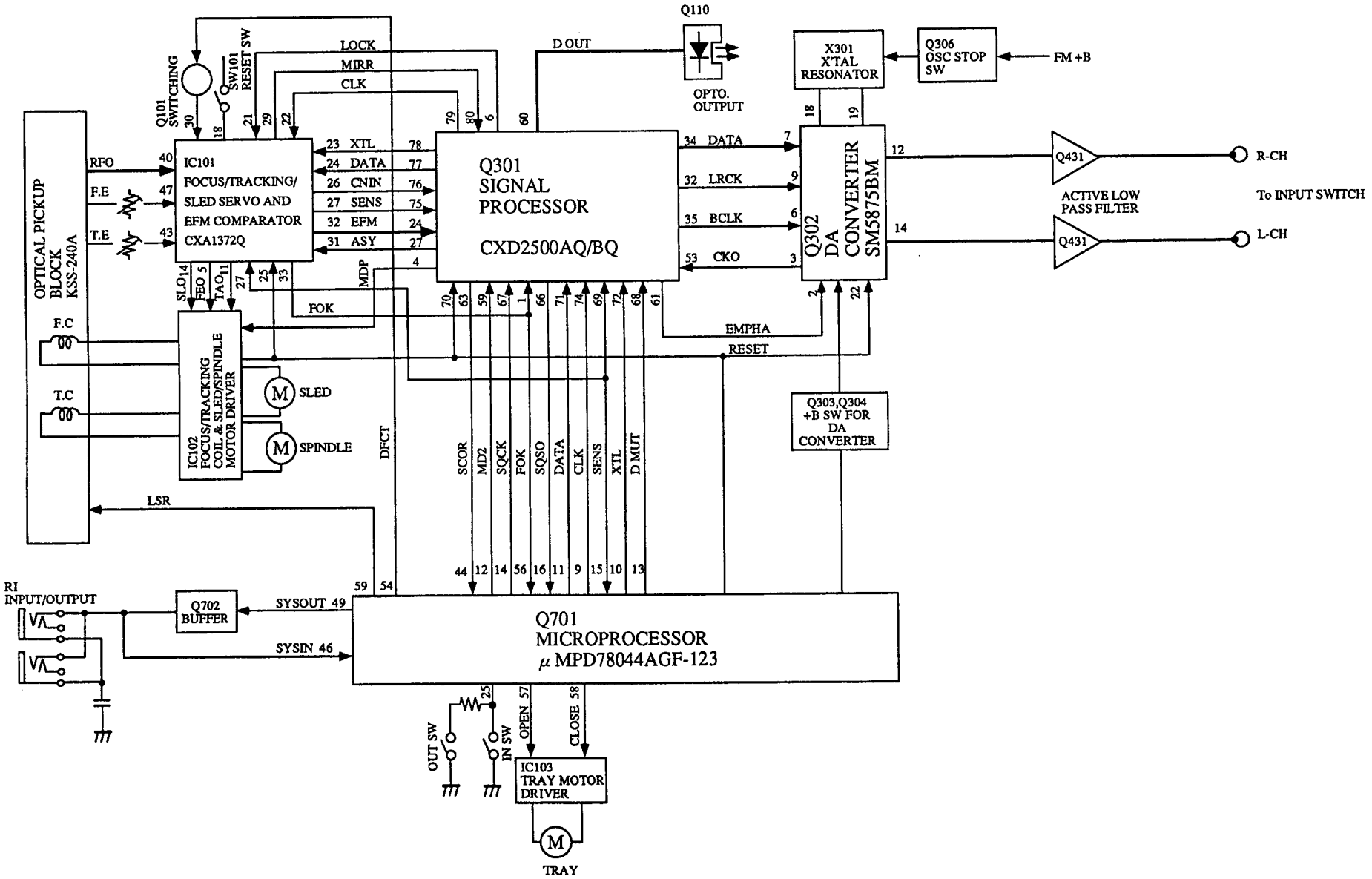


BLOCK DIAGRAM
—Amplifier section—

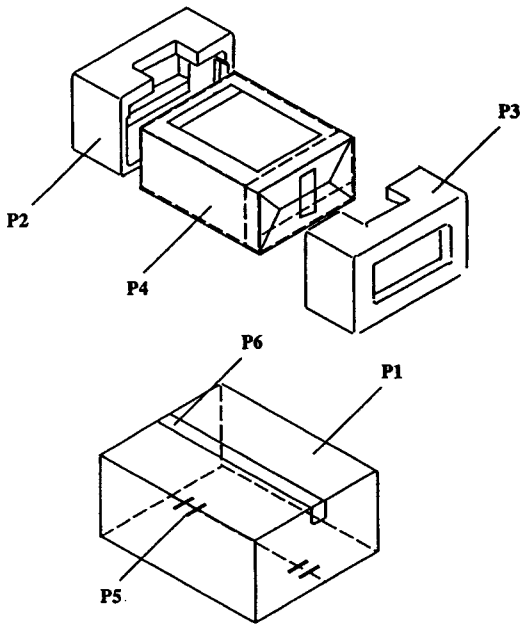


BLOCK DIAGRAM

—CD section—



PACKING VIEW



REF. NO.	PART NO.	DESCRIPTION
P1	29052890	Carton box <B>
	29052891	Carton box <S>
P2	29091688	Pad F
P3	29091689	Pad B
P4	29100123	550*430, Styren bag
P5	282301	Staple
P6	29110071	PP tape
	Accessay bag ass'y	
A1	24140292	RC-292S, Remote control transmitter
A2	3010054	UM-3, Battery
A3	292116	FM antenna
A4	29342131	Instruction manual, English
A5	29342132	Instruction manual U3 (GFI)
A6	29342133	Instruction manual U3 (DSSw)
A7	29355133A	Instruction sheet DBP
A8	29100097-1Y	320*250, Styren bag

NOTE: <B>: Black model only
<S>: Silver model only

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